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OCTOBER 1960

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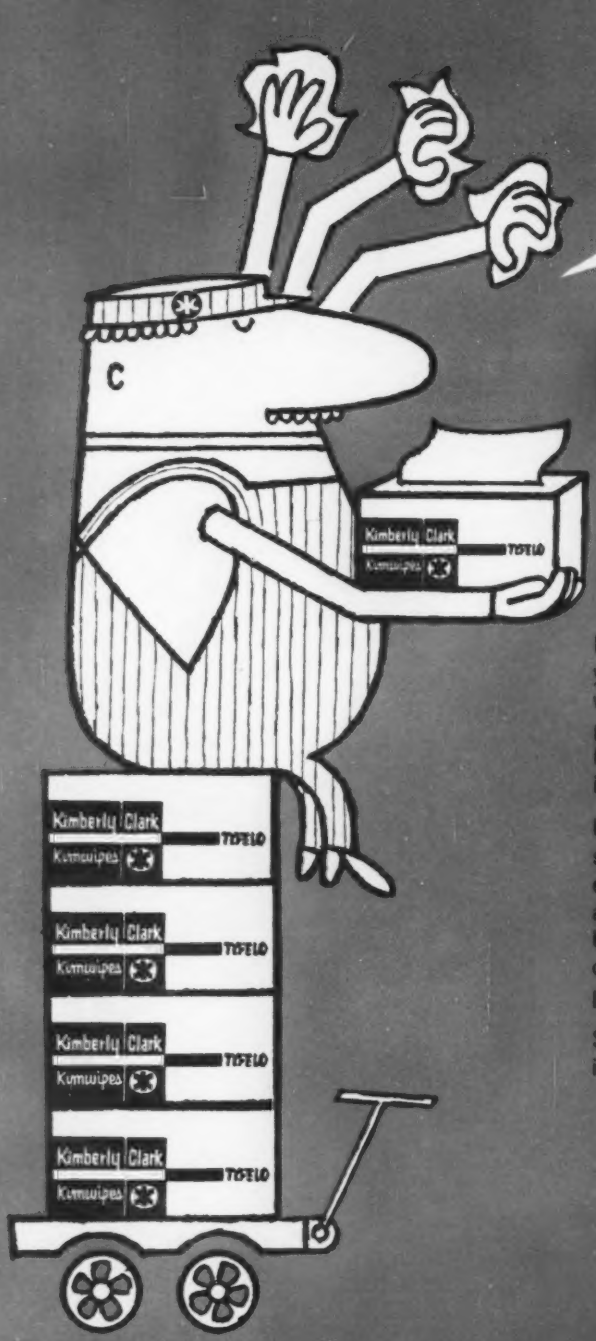
FOOD ENGINEERING

BETTER MANAGEMENT IN MANUFACTURING, PACKAGING, MARKETING

A CHILTON PUBLICATION

Politics IS Your Business—p. 39



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FOOD ENGINEERING

BETTER MANAGEMENT IN MANUFACTURING, PACKAGING, MARKETING

A CHILTON PUBLICATION
VOL. 32 NO. 10

October, 1960

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LOWER PACKAGING COSTS . . .

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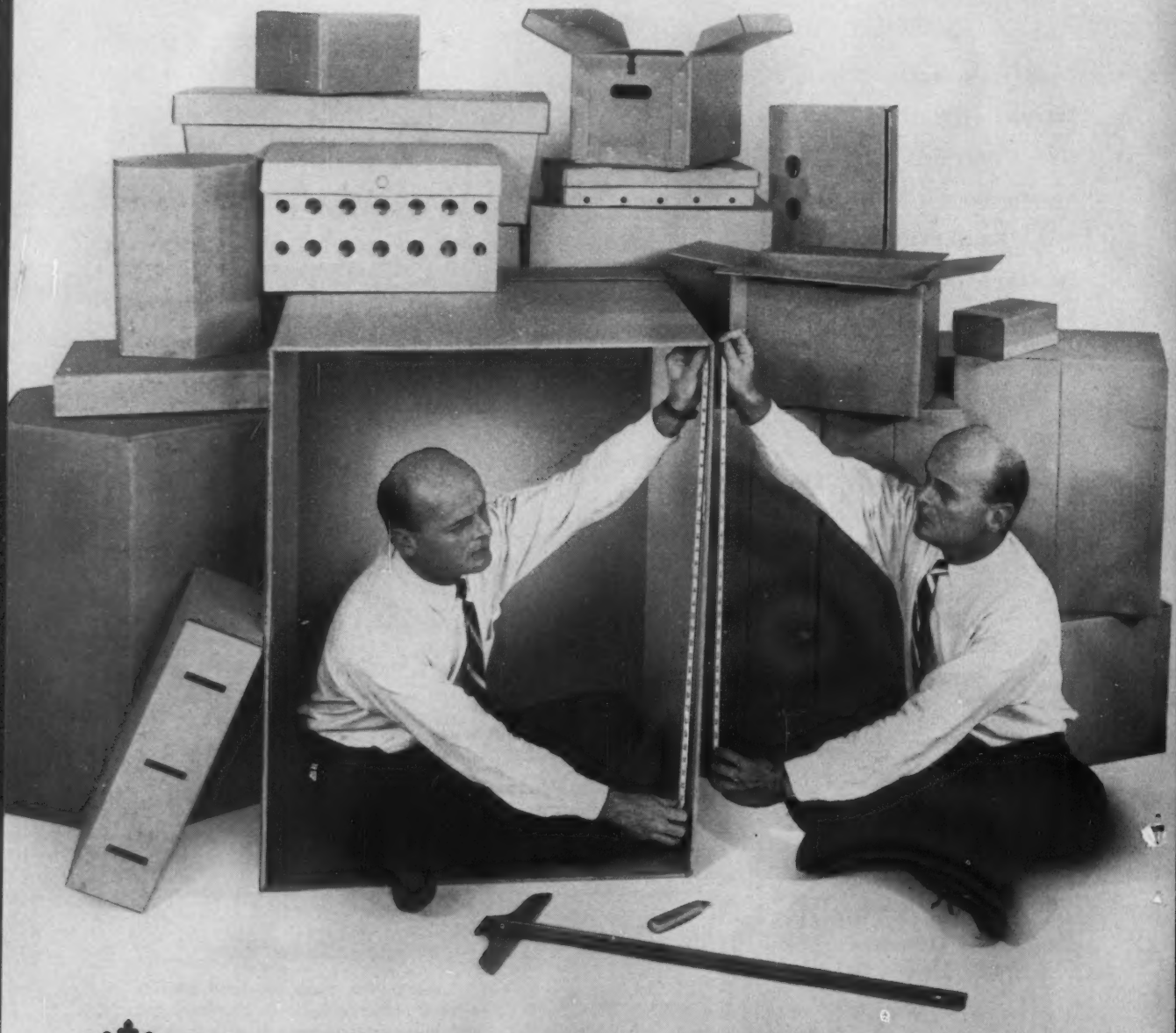

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FOOD ENGINEERING (formerly Food Industries) October, 1960, Vol. 32, No. 10.

Published monthly by Chilton Company; Executive, Editorial, Circulation and Advertising Offices, Chestnut & 56th Sts., Phila. 39, Pa. Second class postage paid at Philadelphia, Pa.

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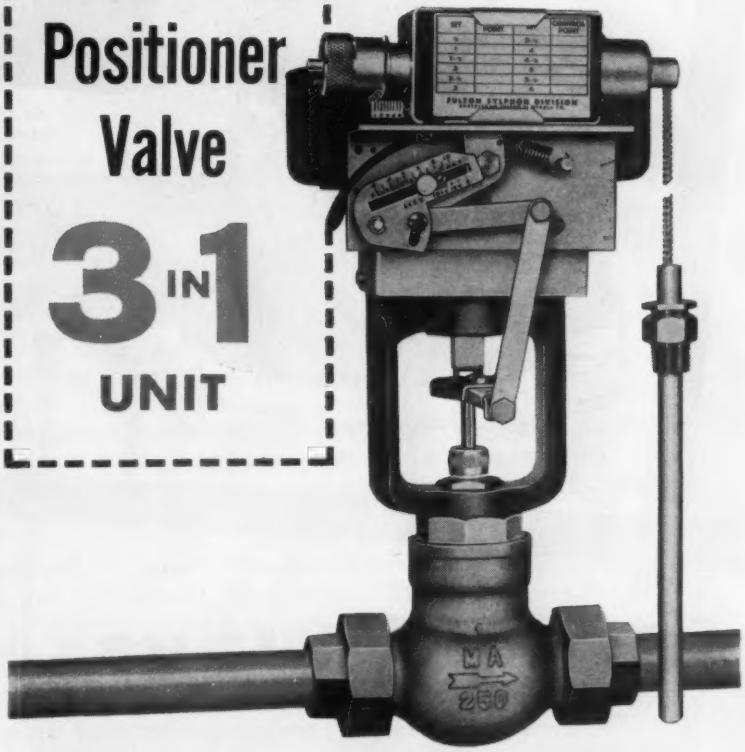

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Right on the heels of the recently introduced FultroMatic air-actuated unit, Robertshaw engineers perfect this electrically operated version, the FultroLectric.

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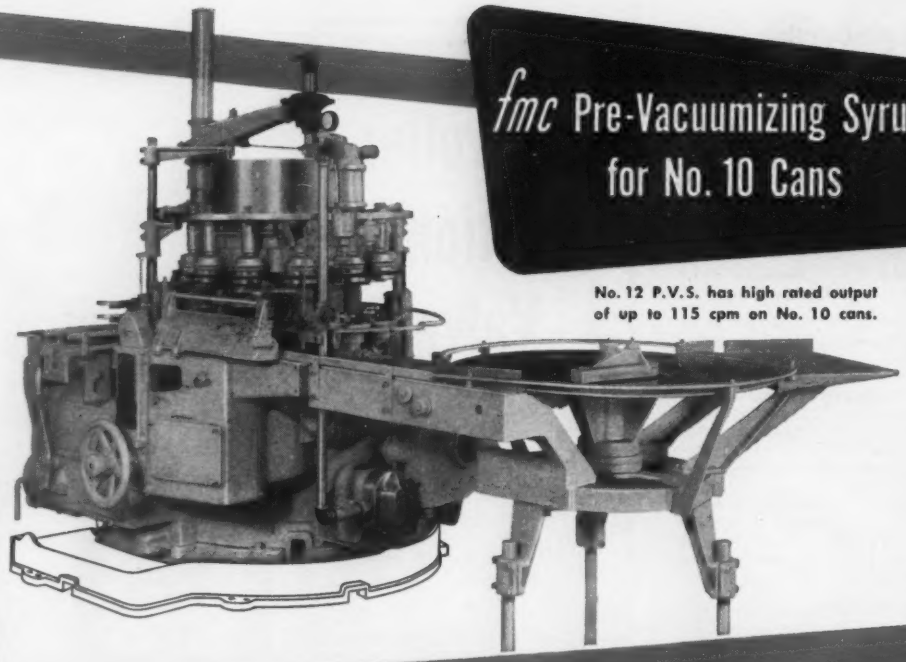

No. 12 P.V.S. has high rated output of up to 115 cpm on No. 10 cans.

Save 3 Ways

SYRUP
—up to 2¾ oz. per can!

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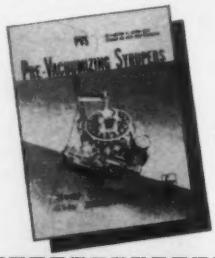
—40 to 80% less!

Now you can speed up your syruping, greatly improve filling accuracy, and effectively remove entrapped air—all at a savings so great that this new FMC Model No. 12 Pre-Vacuumizing Syruper will more than pay for itself in a short period of high volume packing.

You reduce steam requirements up to 1,000 lbs. per hour, not to mention excessive maintenance costs, by completely eliminating the exhaust box system.

Carefully controlled filling accuracy to the exact predetermined headspace, and only *one* transfer of the filled can, means the end of syrup spillage and waste—as well as slack-filled cans. *Comparative tests show a savings in syrup of up to 2¾ ounces per can!*

Smaller can sizes, from 211 to 404 diameter, 300 to 704 height, are handled with comparable efficiency on the FMC Model No. 18 PVS, at speeds up to 275 cpm. Use the coupon to get new bulletin fully describing both of these great PVS models.



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TRENDS & FORECASTS

Federal Reserve index of production for food manufacturing averaged 133.3 for the first first six months of '60 compared to 131 in '59 and 125 in '58.

Capital expenditures for new plants and equipment are expected to total $940 million this year, according to Department of Commerce. Expenditures in '59 were $830 million; in '58, $740 million.

Food and beverage manufacturers will spend 13.1% more for development of new products and new processes in '60 than in '59. This is indicated by AMA's survey, which shows average of 10.7% for all industry.

Sales gained 78% over 10-year period for group of food commodities which had new product introductions. This compares with gain of 10% for group with no new products introduced. These gains, reported by Nielsen, occurred during a population increase of 17%.

Sales in retail food stores were 5% higher in July '60 than year earlier. Eating and drinking places showed 2% gain for same period.

Hurricane damage to citrus crop in Florida is estimated as high as 35% for grapefruit and 10% for oranges and tangerines by USDA. Vegetable crops also were damaged in 32 Florida counties.

Cranberry production will be 4% larger this year than last, USDA forecasts. And 1,288,500-bbl. crop will be 29% above average.

This year's prospective tonnage of eight important vegetables for commercial processing is 3% higher than last year and 8% above average, according to Crop Reporting Board. Increases expected are: green lima beans, 26%; snap beans, 16%, beets for canning, 5%; cabbage for kraut, 30%; tomatoes, 6%. Reductions: sweet corn, 8%; green peas, 8%; spinach, 1%.

Pack of canned green peas totals 26,822,384 cases, down 7½%, NCA reports.

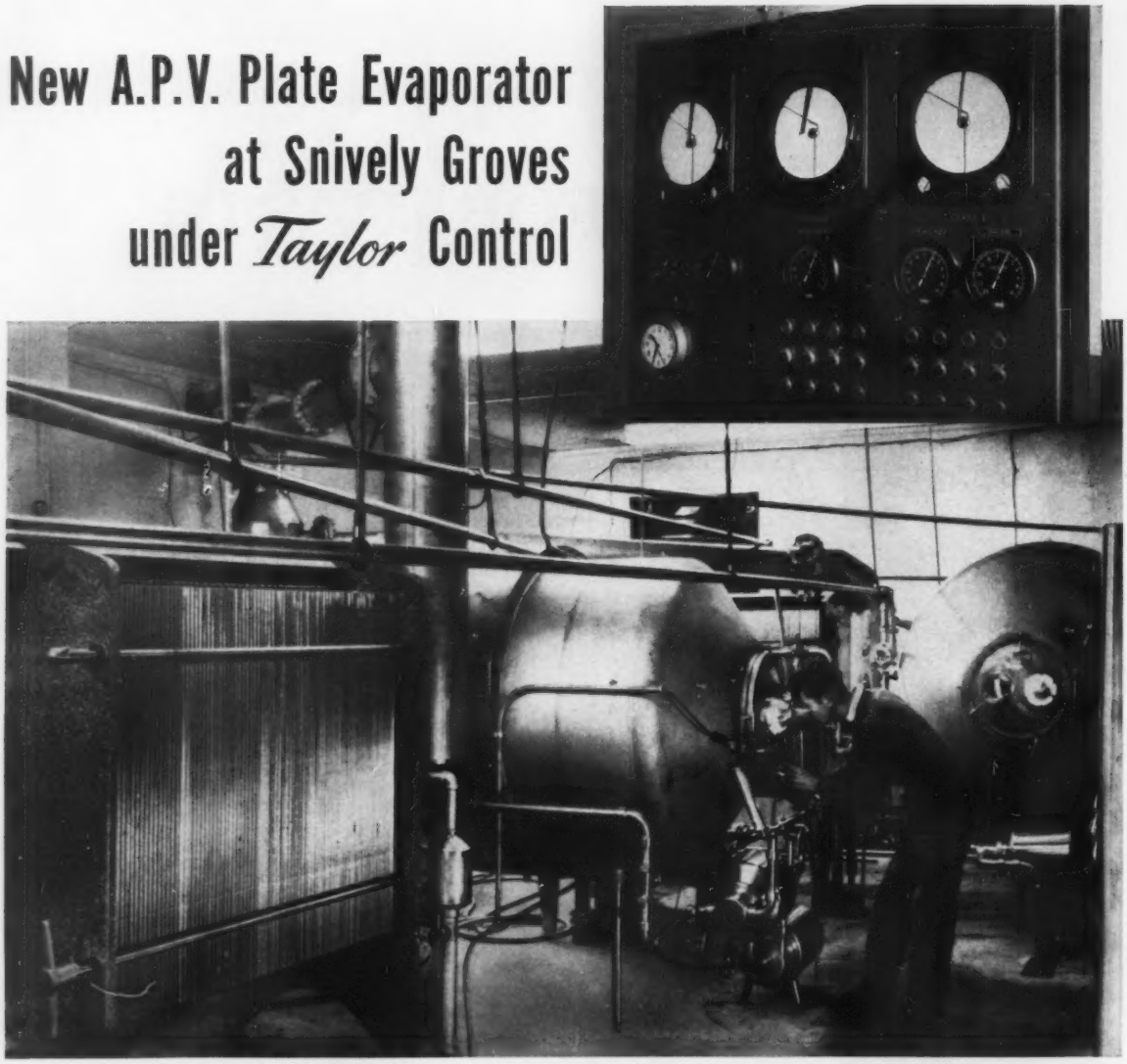
Price reductions of 7 to 10% for certain laminated aluminum foil and polyethylene films recently were announced by Reynolds Metals.

Use of nonreturnable beer bottles is expected to gain 25% this year over last, according to estimates based on reports from breweries.

Labor costs for California packs will be increased by more than 7% this year, and almost 5% next year, under the California cannery labor contract ratified in June. Conflict over organizing of farm labor is of concern also to West Coast canners.

See Developments to Watch p. 13

New A.P.V. Plate Evaporator at Snively Groves under *Taylor* Control



Taylor-controlled double-effect A.P.V. plate evaporator at Snively Groves, Inc., Winter Haven, Florida. Photo courtesy of Food Processing.

Exceptionally rapid throughput permits higher evaporating temperatures, reduces operating costs

Throughput is so rapid—a matter of seconds—in the special-design A.P.V. Plate Evaporator at Snively Groves' Winter Haven plant that higher operating temperatures can be used than with conventional evaporators. Quality of the orange juice concentrate is as good, if not better, than that produced by traditional means. Overall savings are substantial.

Accurate and dependable temperature controls play an important part in maintaining product quality. On the Taylor control panels shown above, the two FULSCOPE® Recording Controllers regulate the temperature to which the juice is heated before entering the evaporator and the temperature to which it is heated between the two effects.

The three pen Recorder (center instrument) provides an accurate record of vapor temperatures leaving the 1st effect, the 2nd effect and the flash vessel.

Dial indicators show steam pressure to thermo-compressor; vacuum at 1st effect steam chest; 1st effect product vacuum; 2nd effect product vacuum; vacuum in flash vessel.

• • •

Whatever your process control problems there is a Taylor-made solution . . . the result of years of experience in serving the food processing industries. See your Taylor Field Engineer, or write for **CATALOG 500.** Taylor Instrument Companies, Rochester, New York and Toronto, Ontario.

Taylor Instruments **MEAN ACCURACY FIRST**

Schedule of Events

October

15-19—American Bakers Assn., meeting; Hotel Sherman, Chicago.
19-21—National Management Assn., meeting Dinkler-Plaza Hotel, Atlanta, Ga.
19-21—National Pickle Packers Assn., meeting; Edgewater Beach Hotel, Chicago.
23-26—National Frozen Food Assn., meeting; Statler-Hilton, N.Y.C.
24-26—Grocery Manufacturers of America, meeting; Waldorf-Astoria, N.Y.C.
25-27—Institute of Sanitation Management, show; Sheraton Hotel Cadillac, Detroit.
26-29—International Assn. of Milk & Food Sanitarians, meeting; Hotel Morrison, Chicago.
31-Nov. 2—Grocery Manufacturers Assn., annual meeting, Waldorf, N.Y.C.
31-Nov. 2—Packaging Inst., annual forum; Statler-Hilton, N.Y.C.
31-Nov. 5—American Institute of Baking, sanitation course; 400 E. Ontario, Chicago.
31-Nov. 5—Dairy Industry Supply Assn., exposition; Amphitheater, Chicago.

November

2—Evaporated Milk Assn., meeting; Lowrey Hotel, Chicago.
2—National Ice Cream Mix Assn., meeting; Knickerbocker, Chicago.
8-10—Materials Handling Inst., show; Kentucky Fair & Exposition Center, Louisville.
9-11—American Management Assn., insurance conference; The Drake, Chicago.
13-16—Assn. of National Advertisers Inc., meeting; The Homestead, Hot Springs, Va.
13-19—International Assn. of Ice Cream Manufacturers, meeting; Granville, Inn, Granville, O.
14-17—American Bottlers of Carbonated Beverages, meeting; Cobo Hall, Detroit.
14-16—National Potato Council, meeting; Hotel Washington, Washington, D. C.
27-30—National Assn. of Food Chains, meeting; Americana Hotel, Miami Beach, Fla.

HORS D'OEUVRES

Milan D. Smith, NCA's president, recently headed an exchange team of food executives on a one-month tour of food plants in Russia. If nothing else, the Soviet has an advanced red herring industry.

Thirty-five percent of people surveyed by National Live Stock & Meat Board cook outdoors once or twice a week in the summer season. Fresh air and ashes are as great flavor enhancers as MSG.

Cornell's Professor DeGraff has a new name for convenience foods—"idiot items." Any idiot can prepare them without making a mistake.

John Hare, England's Minister of Agriculture, wants the British candy industry to develop noiseless wrappers for benefit of moviegoers. In the U. S. the great need is for noiseless popcorn.

Fragrance Process Co. is trying to develop a mousetrap with plastic that exudes the aroma of bacon. Ingenious, convenient, and economical—but isn't a rodent entitled to a last meal?

Warns Rutgers nutritionist Irene H. Wolgemot: "You're less likely to lay an egg at work if you eat one for breakfast."

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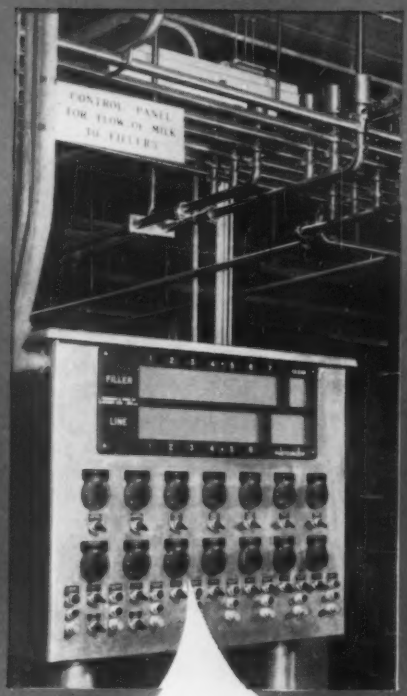
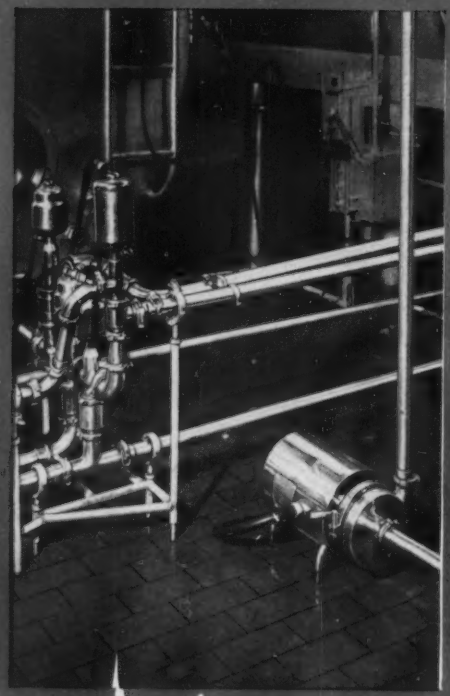
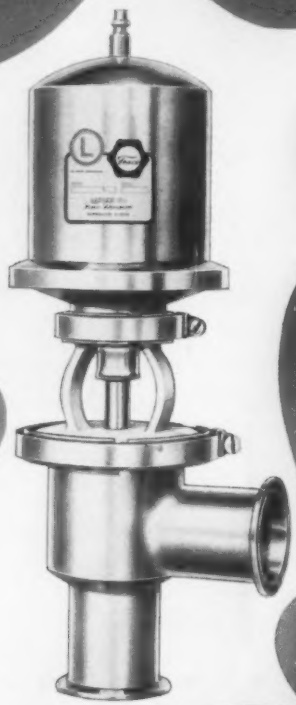
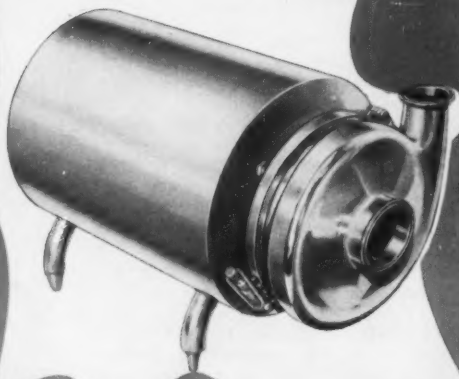


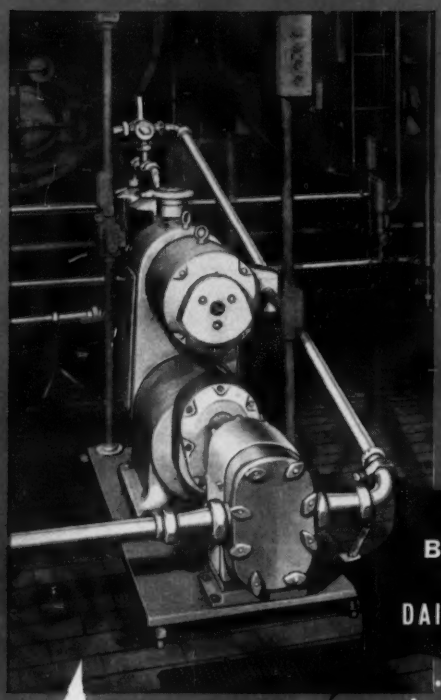






You'll see control panels, air-actuated valves and related equipment of Ladish Co., Fesco Division . . . specialists in the design, manufacture and installation of automatic control systems.

On display for the first time will be a new line of Tri-Clover totally-enclosed, all stainless steel centrifugal pumps designed for more efficient operations.



BOOTH
R-528
DAIRY SHOW

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TRI-CLOVER'S SHOWCASE "60"

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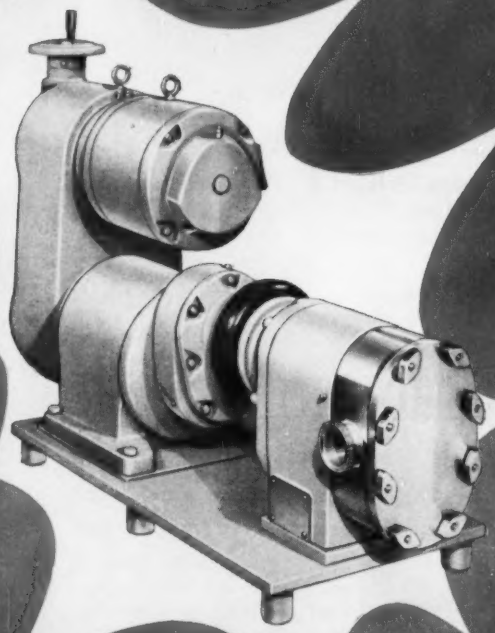
designed to help you achieve new standards of processing efficiency

Never before has Ladish Co., Tri-Clover Division had so many new ideas to present in one Dairy Show Exhibit. Included in the 1960 presentation . . . Tri-Clover's largest . . . will be the "key story" of modern dairy automation—a new line of Tri-Clover centrifugal pumps—the first industry showing of the new Tri-Clover "PR" Series of Positive Rotary Pumps—and a complete display of Automatic Valves and Controls.

Be sure to visit Booth R-528 at the Dairy Show, and let us show you how to increase processing efficiency with new, yet fully tested, Tri-Clover products.



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A Vital Ingredient In a Pre-Packaged Dry Mix

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YOURS ON REQUEST: Free samples of Kelco algin, and Technical Data describing properties and advantages, for *your* application. Write without obligation to your nearest Kelco regional office.

Use Keltose or Kelcoloid HVF, other unique Kelco algin products, for dry mix icings.

With Keltose in the formula, icings are retained on cake surfaces with greater gloss and stability. Stickiness of the icing is reduced so that it does not tend to adhere to wrapping. Cracking and peeling during exposure is reduced, drying out of icings prevented.

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CIRCLE 12 ON READER SERVICE CARD

DEVELOPMENTS TO WATCH

New approach to control of food spoilage is being researched. It involves the use of heat-resistant vitamin K_5 as preservative. Idea is to extend shelf-life of canned or frozen foods after exposure to air.

Automatic particle-size analysis is achieved with nuclear instrument developed by Evans Research. Beta-ray backscattering technique measures the magnitude of fluctuations in a random sampling.

Five years of research by USDA indicates that malathion is effective as treatment for low levels of insect infestation in stored grain. Application in spray or dust form gives protection for season.

Air conditioner with high-voltage field breaks up dust particles and ionizes them negatively. Such particles are repelled from ceilings to avoid deposition of dirt. It is Statronic development.

Packaging tomato concentrate in 100-lb. plastic bags for shipment to reprocessing plants is under study at Univ. of California.

Humane kosher slaughter of beef animals is achieved with new Canada Packers' narrow restraining pen. Metal positioner at back and nose restrainer at front keep animal from moving.

Chicken hot dogs have been developed at Cornell for test marketing.

New concept is to pack blanched raw vegetables in boilable bags before freezing. Purpose is to retain flavor in cooking.

Use of foam-in-place insulation in thin panels is facilitated by new technique. Liquid is partially frothed by Freon before pouring.

Tear-open aluminum can has scored strip around top. Pull on finger loop tears off strip. Alcoa innovation is being tested by Minute Maid.

Elimination of corrugated shipping case is aim of experimental bundling of 4 rows of 6 cans with machine-applied flexible film. Multiple-packaging by bundling also is under test.

See Who's Building What p. 17

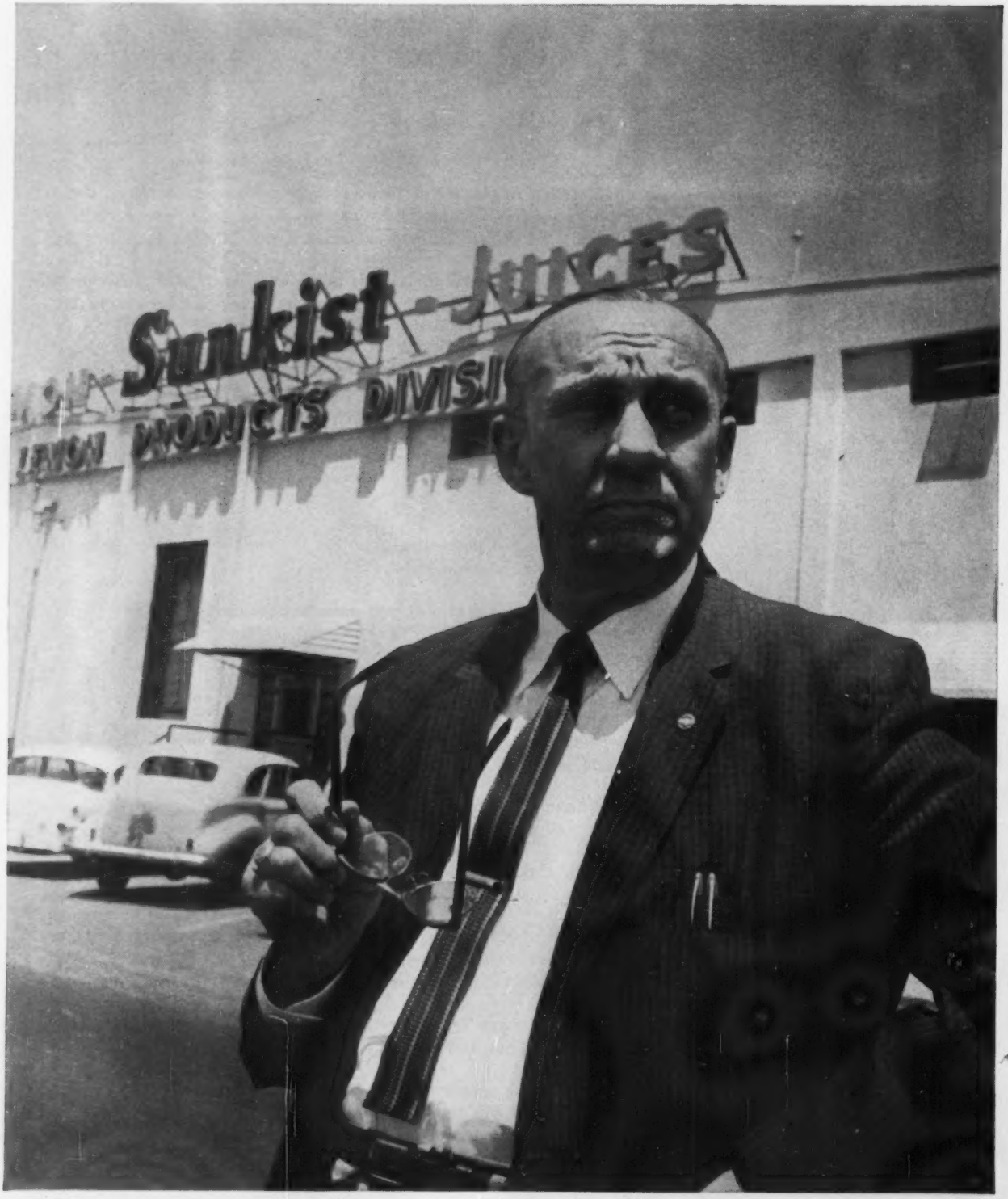
Low-cost can made from aluminum foil laminated to paperboard is under test. Alcoa and United Shoe Machinery jointly developed it.

Commercial-size experimental bakery has been built by Baker Process Co. It will test new products for 100 plants using Baker dough process and produce bread with formulas of prospective buyers.

Washington Report p. 23

Packaged Convenience Foods Institute has been organized to pass information from packers to consumer and trade publications. Sponsored by Continental Can, it is operated by Dudley-Anderson-Yutzy.

DOW | INSULATION



James S. Hutchison, chief engineer for Lemon Products Division, Sunkist Growers, who utilized nearly 400,000 board-feet of Styrofoam in a new warehouse at Corona, California.

STYROFOAM®

Approved Insulation Contractor relieves Sunkist of detail on low-temp installation for new warehouse

"Styrofoam*, installed by a Dow Approved Insulation Contractor," reports James S. Hutchison, chief engineer for the Lemon Products Division, Sunkist Growers, "gives us the advantages of a permanent, moisture-sealed, maintenance-free insulation job." The AIC, Los Angeles Cork Company, installed nearly 400,000 board-feet of Styrofoam in a new warehouse that's so large it can hold enough frozen concentrate to make a four-ounce glass of lemonade for every U.S. citizen.

"Having an AIC do the job meant that we didn't have to spend expensive engineering time to 'nursemaid' the project," Mr. Hutchison points out. "Then too, the inspectors which Dow provided undoubtedly were much more familiar with this type of construction than we. In short, we were relieved of maintaining a time-consuming, laborious inspection program, without risking any defects in workmanship."

As Sunkist found out from first-hand testing, neither water nor water vapor penetrates Styrofoam, which makes its high insulating efficiency (low "K" factor) *permanent*. "Competitive insulating materials were checked for their resistance to vapor passage," Mr. Hutchison reports. "We couldn't even get a pressure drop through the Styrofoam."

As Sunkist discovered by careful investigation of insulation materials and contractors, the AIC certificate is awarded by Dow only to carefully selected contractors capable of providing technical design assistance, followed by expert installation. Los Angeles Cork Company is typical of more than 90 Approved Insulation Contractors located throughout the country. For the names of the ones nearest you, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1642KE10.

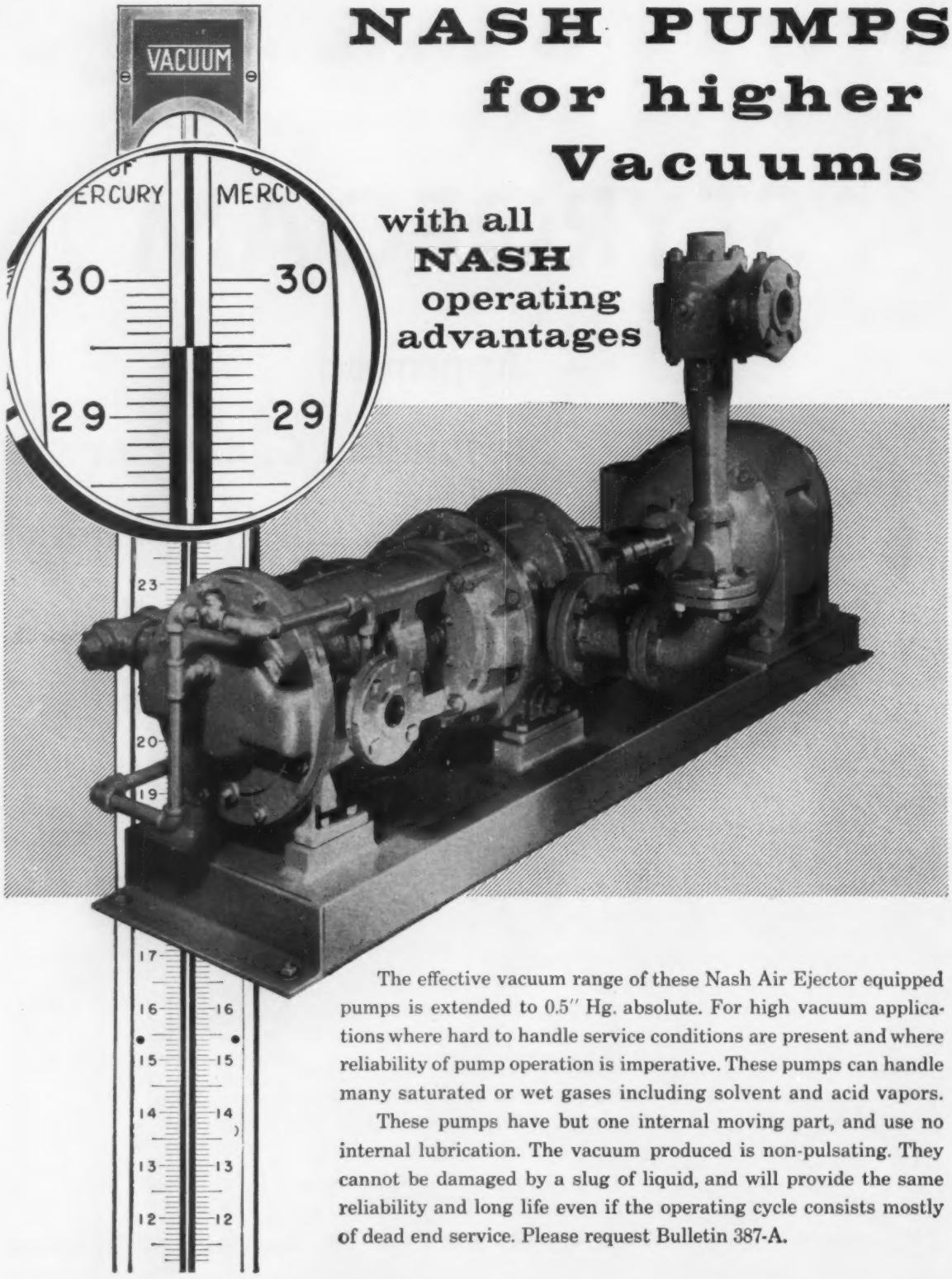
**Dow's registered trademark for its expanded polystyrene*

See "The Dow Hour of Great Mysteries" on TV

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

NASH PUMPS for higher Vacuums

with all **NASH** operating advantages



The effective vacuum range of these Nash Air Ejector equipped pumps is extended to 0.5″ Hg. absolute. For high vacuum applications where hard to handle service conditions are present and where reliability of pump operation is imperative. These pumps can handle many saturated or wet gases including solvent and acid vapors.

These pumps have but one internal moving part, and use no internal lubrication. The vacuum produced is non-pulsating. They cannot be damaged by a slug of liquid, and will provide the same reliability and long life even if the operating cycle consists mostly of dead end service. Please request Bulletin 387-A.

NASH ENGINEERING COMPANY

SOUTH NORWALK, CONNECTICUT, U. S. A.

WHO'S BUILDING WHAT...

Monthly Reports: These food firms will spend $3,168,458 for expansion.

Low Bids/Contracts

Borden Co., Houston, Tex., milk vault addition, $105,000.

City Poultry Processing Co., Houston, Tex., poultry processing plant, $250,000.

Coca-Cola Co., Yazoo City, Miss., bottling plant, $140,000.

Dixie Frozen Foods, Inc., Atlanta, Ga., meat processing plant, $313,458.

Empire Seafood Co., Birmingham, Ala., processing plant, $300,000.

Kraft Foods, Inc., Decatur, Ga., food processing plant, $500,000.

Lubbock Packing Co., Lubbock, Tex., meat packing plant, $110,000.

Minneapolis Brewing Co., Minneapolis, Minn., storage bldg., $350,000.

National Biscuit Co., Hamden, Conn., warehouse, $250,000.

Needham Packing Co., Sioux City, Iowa, beef and sheep killing plant, $700,000.

Oscar Mayer & Co., Atlanta, Ga., warehouse, $150,000.

Proposed Work

Barnes Grocer Co., Poplar Bluff, Mo., warehouse, $250,000.

Borden Co., Dayton, Ohio, milk and ice cream plant, $700,000.

Coca-Cola Co., Beaumont, Tex., bottling plant, $110,000.

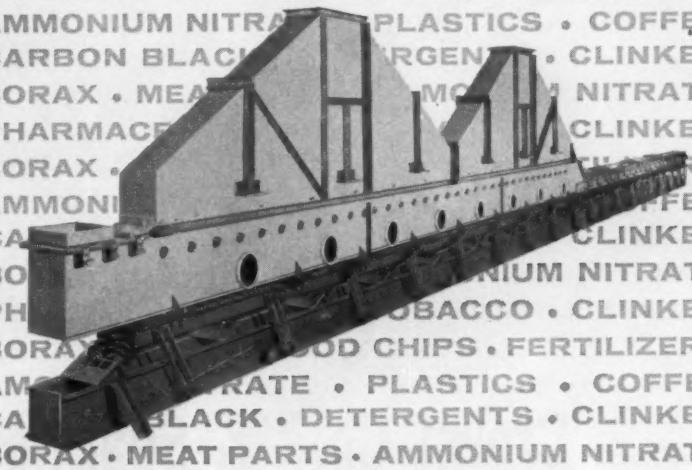
Farmer Bros. Coffee Co., Houston, Tex., coffee roasting plant, ship channel, $2,000,000.

Rowan Dairy, Salisbury, N. C., plant addition, $150,000.

Vilotti-Marinelli Baking Co., Philadelphia, Pa., bakery, $110,000.

Yoakum Packing Co., Yoakum, Tex., meat packing plant, $120,000.

CARBON BLACK • DETERGENTS • CLINKER
BORAX • MEAT PARTS • AMMONIUM NITRATE
PHARMACEUTICALS • TOBACCO • CLINKER
BORAX • PEAS • WOOD CHIPS • FERTILIZERS
AMMONIUM NITRATE • PLASTICS • COFFEE
CARBON BLACK • DETERGENTS • CLINKER
BORAX • MEAT PARTS • AMMONIUM NITRATE
PHARMACEUTICALS • TOBACCO • CLINKER



HEAT TRANSFER
cooling-drying ON THE RUN!

Carrier Processing Conveyors combine conveying and processing to save space...reduce costs...increase capacity...protect products.

The conveyor shown above dries, screens and conveys carbonaceous particles at the rate of over 2 t.p.h. Moisture is reduced from 14% to ½% using 350° F. air in just the first 30 feet. Material is conveyed a total of 80 feet.

HERE'S WHAT CARRIER "CUSTOM ENGINEERED" CONVEYORS CAN DO FOR YOU

SAVE SPACE...require less headroom ...can elevate material as well as straight-line convey. Simple accessories make possible additional operations such as screening...lump breaking...sampling.

REDUCE COSTS...double-duty Carrier Conveyors eliminate need for multiple units. Operating and maintenance costs are far lower than for other types of process equipment.

INCREASE CAPACITY...size for size... job for job. Carrier Conveyors assure maximum capacity and greater return on your investment.

PROTECT PRODUCTS...gentle Natural Frequency conveying action protects fragile crystals or pellets. There is no product breakdown...no segregation. Simple, easy-to-clean troughs keep food and pharmaceuticals contamination-free.

Carrier laboratories will provide test data on your materials. Write Carrier Conveyor Division, CHAIN Belt Company, 215 North Jackson Street, Louisville 2, Kentucky.

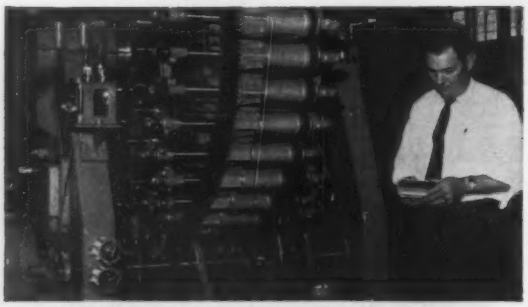
CARRIER CONVEYOR
~~NATURAL FREQUENCY~~
VIBRATING EQUIPMENT
CHAIN BELT COMPANY

CONVEY • FEED
DEWATER • SCREEN
COOL • DRY
SCALP • COAT
DISTRIBUTE • ELEVATE

CIRCLE 17 ON READER SERVICE CARD

Located amid the apple orchards of historic Shenandoah Valley, CCS plant has 40 acres including ample room for expansion. Site is served by railroad and by Virginia's excellent, fully paid for, highway system.

Crown Cork & Seal Company Finds "High-Calibre Employees" in VIRGINIA



Plant Manager makes spot inspection at the pressure tester which automatically tests for leaks under pressure. Plant boasts all modern production equipment.

Cans are fed by overhead conveyor into rail cars inside plant. The utilization of the newest can handling systems for both truck and rail are a feature of the plant.

Crown Cork and Seal Company, Inc. located its up-to-the-minute can-manufacturing plant at Winchester, Virginia, to serve the booming apple-processing plants of the Shenandoah Valley, as well as canners in neighboring states. Operations commenced in September, 1959, and proved so successful that CCS is now installing additional equipment in the new plant.

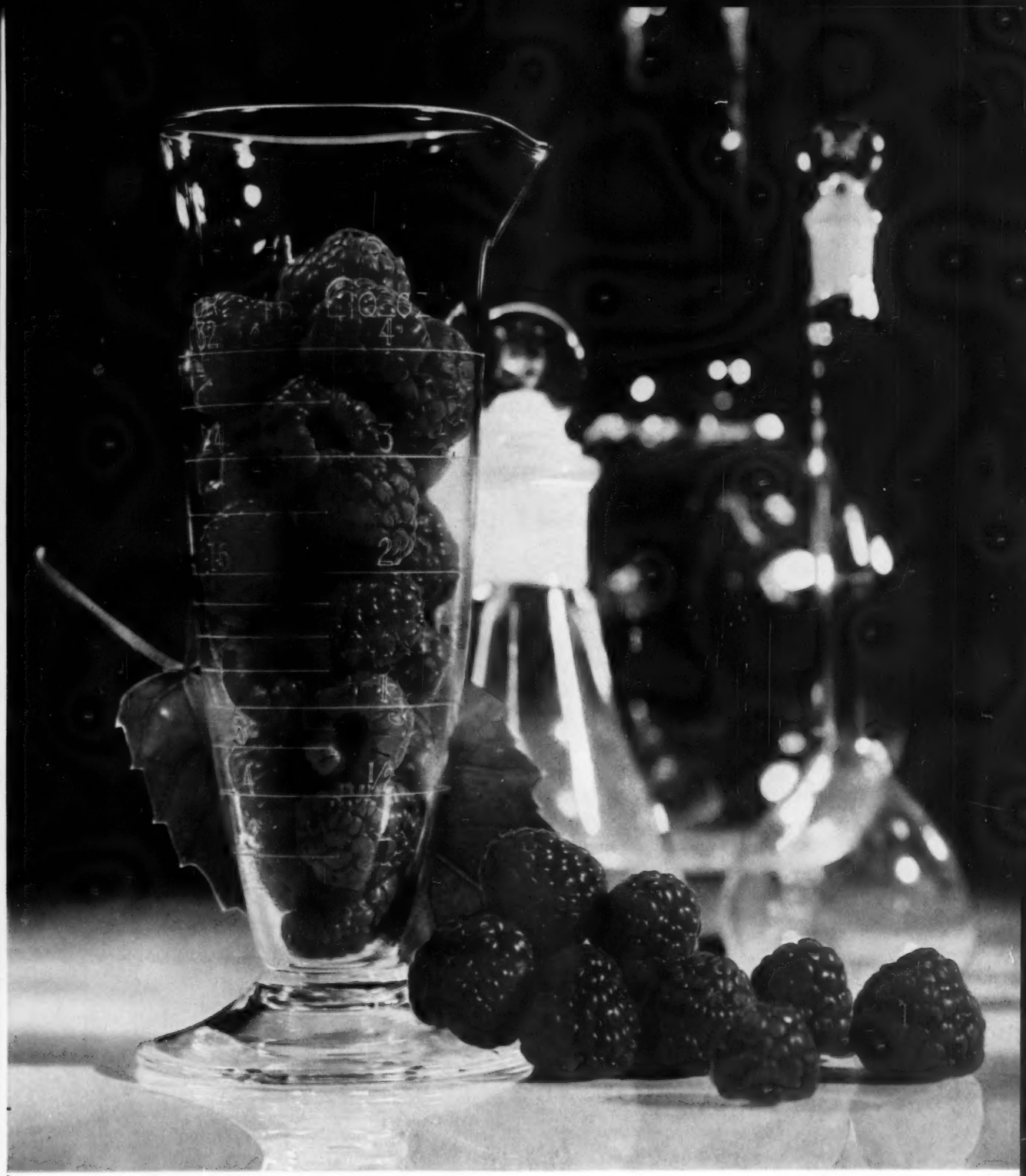
In explaining the unusual efficiency of their Virginia plant, Crown officials point out, "our very successful first year of operation has been due to the high calibre of employees available in the area, and to the low absenteeism which resulted."

Find out more about the manpower and marketing advantages of Virginia. In confidence, phone, wire or write . . .

C. M. Nicholson, Jr., Commissioner
Division of Industrial Development and Planning
Virginia Dept. of Conservation and Economic Development
State Office Bldg., Richmond, Va.
Phone MIlton 4-4111 Ext. 2255

You, too, can find these... and many other great competitive advantages in **VIRGINIA**
. . . a wonderful place to play or work

CIRCLE 19 ON READER SERVICE CARD →



IMITATION RASPBERRY BY FIRMENICH

You get the direct and authentic reproduction of raspberries in their full perfection in Raspberry Flavor by Firmenich. For Firmenich took fully ripe raspberries, freshly severed from the stem, captured their delicate and fugitive flavor, and by original research reconstructed it with all its significant and desirable components. Firmenich Raspberry comes to you as a precise and potent flavor material of the utmost purity and stability to enhance the flavor of your products and to give them greater sales appeal. Samples and technical data on request.

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GENEVA PARIS LONDON

Understanding the packaging problem completely is to know how to solve it properly. That's why Triangle invests so many man hours in Preliminary Engineering. We do it to make a proposal just as carefully as before engineering a machine already on order. As a result you can depend on the equipment you're ordering, and we can guarantee it.

Will your next packaging machine perform as well as Oh Henry's?

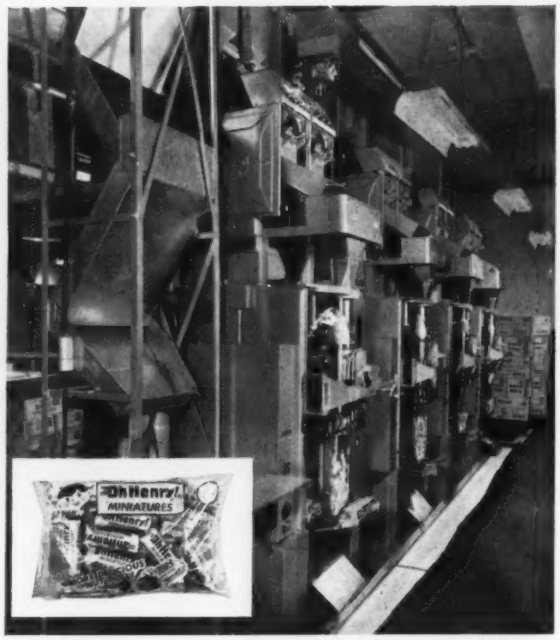
It will *if* the machinery builder is able to understand your particular packaging needs as well as Triangle understood those at Williamson Candy Company, Chicago, Illinois.

Whether you want to package miniature Oh Henry candy bars in poly bags or not, Triangle's consideration of *your needs* always begins in Preliminary Engineering. Everything that relates to the situation is analyzed and fitted into its proper place. The result is an outline of needs so complete as to permit the most practical, direct solution.

In this instance, both Williamson and Triangle knew specifically what was needed—type of machine . . . how fast it would operate . . . floor space requirements . . . how quickly the investment would be amortized—all was determined in advance.

The machine that satisfied all requirements was the Triangle single tube Bag Maker and Filler. The four machine installation is equipped with Elec-Tri-Pak scales for high speed, accurate, fully automatic operation. This remarkable single tube machine is also available as a twin, featuring independent operation of either tube.

Like so many other users of Triangle machines, Williamson Candy Company already knows what we want to show you. Why not write for our free brochure, "A Story About People, Packaging and Profit." It tells why you can depend on Triangle.



Williamson Candy Company uses a battery of Triangle Bag Maker and Filler machines to automatically package miniature Oh Henry candy bars in 7, 9, and 14 oz. printed polyethylene.

37 YEARS

•••••••YOU REALLY SAVE WITH•••••••

TRIANGLE

PACKAGE MACHINERY COMPANY

6637 W. Diversey • Chicago 35, Illinois
Telephone TUxedo 9-0200 F-13L2

Shoot for instant sales...

with sure-fire packaging!

Here's protection that keeps your powder dry—just like a built-in desert! Add vivid, sharp printing, and you have the finest new packaging developed for hygroscopic products.

Look at the range of products and sizes. Milk to onions. A cupful to a bucketful. Bags, pouches, overwraps. One (or more) of these packages could help *you* increase sales and cut packaging costs.

For case histories and complete information, write Hygroscopic Packaging, 2101 Williams Street, San Leandro, California. East of Denver, write 4410 Hunt Avenue, St. Louis, Missouri.

CROWN ZELLERBACH
WESTERN-WAXIDE DIVISION

Plants and sales offices in principal cities throughout the United States. Headquarters, 2101 Williams Street, San Leandro, California. In Canada address product inquiries to Crown Zellerbach Limited, Vancouver, B.C.

Permagloss belt conveying meat patties into freezing tunnel at Duffey plant in Carrollton, Ga.

How Permagloss conveyor belting cut labor cost 50% for the Duffey Sausage Company

DUFFEY packs frozen meat specialties — steakettes and hamburger patties. Formerly, these had to be placed in trays, picked up by hand, carried into the freezer, left to freeze, carried out again and broken free of the trays.

Now the meats are placed directly on the moving Permagloss conveyor belt, and carried into the -12°F. freezer, where they freeze solid. They then drop off the belt onto the packing table without being touched. This achieves continuous in-line production that eliminates excessive handling.

Result: The direct labor cost for the entire process has been cut in *half*.

Lasts For Years

Permagloss belting is made of DuPont Mylar® and Firestone Vinyl. In temperatures from below zero to 275° F. it remains dimensionally stable without embrittlement, cracking or crazing. Permagloss also has high abrasion resistance and tear strength. It can be flexed almost indefinitely without fatigue. A Permagloss belt lasts for *years*, often outwearing other conveyor belting materials several times over!

Ideal For Foods

The mirror-smooth Permagloss carrying surface is completely resistant to oils, greases, fats, solvents, moisture and almost all acids and alkalis. It remains odorless and tasteless *with no maintenance except wiping*, and does not support bacteria growth.

Permagloss is the ideal belting for food handling. It will replace most types of conventional conveyor belting, and usually costs less! Write today for a free Permagloss sample and complete technical information.

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NEW YORK, N.Y. • CHICAGO, ILL. • CHELTENHAM, PA. • ATLANTA, GA. • GREENSBORO, N.C. • DANVILLE, VA.
DESIGNERS AND MANUFACTURERS OF PRINTED PACKAGING IN FILM, FOIL, PAPER, PAPERBOARD

Washington Report

Ice cream wins respite . . . FTC food probe ranges far . . . 'Spry' draws unbending FDA stance

FTC Pay-Off: Sweat 'n Gold

Don't be misled by press stories into thinking that Phase II of FTC's economic food inquiry is limited to under-the-table deals. Questionnaire sent to freezers is highly detailed one—which will require thousands of man-hours to answer, but which should turn up a lot of invaluable industry marketing data.

Subject areas include: acquisitions; production and raw materials sources (to help FTC gage how far backwards freezers are integrating); payments to growers; output and inventory of selected products; gross sales by class of products, and whether under own or other brand.

FTC also wants sales data broken out to cover volume done with each of the top 10 chains, the packer's 3 smallest and 3 biggest chain customers, the amount done under freezers' brands or chain labels, and whether sales were made through the packer's sales force or through a broker. **And the operating data—which includes specific breakdown for such hush-hush items as sales allowances, advertising, and field sales expenses—are sought for canned fruit and vegetables as well as frozen varieties.**

FTC is well aware that names make news. For, a footnote at the end of the operating data section innocently asks the packer "whether or not (he has) any objection to this information . . . being made public."

Confidential Data To Be No More?

What you tell Census Bureau will no longer be a secret if over-zealous Justice Dept. and Federal Trade Commission sleuths have their way. They are demanding the right to examine confidential Census reports filed by companies being investigated for antitrust actions.

Census refuses to let anybody look at such reports, pointing out the law requires privacy and that only sworn Bureau employees are permitted to have access to the records. **If Census loses, it means that a vast storehouse of confidential data on prices, markets, and selling practices will be opened to government anti-monopoly lawyers.** Also, that the Bureau's invaluable market research work would be hurt.

U. S. Supreme Court, handed the hot potato, may rule on it during the Fall term.

Delay For Ice Cream Standards

FDA let it be known it's agreeable to "any reasonable extention of time" for the ice cream standards' deadline date (Oct. 25). International Assn. of Ice Cream Mfrs., contending that the standards will cause severe losses for many firms if left unchanged, is huddling with agency officials to work out a practical effective date. Most frequently mentioned limits are 90-day and 6-mos. extensions.

'62 Targeted for Food-Ray Plant

Actual food-ray work at the Army's Natick, Mass., research lab (see FE, May '60, p. 39), is scheduled to get under way by the end of '62, if not a little earlier. Equipment to be installed there will include a megacurie Cobalt-60 source, a 24 MEV linear accelerator, and a supporting food preparation lab. Basically, research will be aimed at how to add low-dose radiation during processing of perishables so as to extend shelf life.

Double-Barreled Approach on Sugar

Two new sugar laws are likely to emerge from Congress next year—1) simple extention (through '61) of the existing Act, and 2) a long-range policy. House Agriculture Committee set the stage for the latter by asking USDA to come up with recommendations by late Jan. or early Feb.

USDA is prepared to report that U. S. can: 1) expand domestic sugar cane production up to capacity of existing processing plants, 2) allow 10% increase in beet sugar output by same device, and 3) buy enough from foreign countries to replace the 3 million tons formerly gotten from Cuba.

One iffy long-range tickler that's arousing conjecture: What if relations with Cuba eventually improve and that country wants its quota back?

'No Compromise' on 'Light Spry'

FDA is confident it has a solid case against Lever Bros. "new, light Spry" on alleged mislabeling and deceptive pricing. Reported overtures by company lawyers for an out-of-court settlement have met a firm "no compromise" agency stance. Government wants relabeled containers that answer its price and volume complaints.

Keep an eye on this case—it's the first time FDA has attacked "cents off" deal as mislabeling. A government victory here sets precedent for similar FDA action against others.

BRIEFS

New tax relief law permits food firms to consolidate all foreign earnings for purposes of determining limits on overseas tax credits.

Upward revision of wage minimums in Puerto Rico boost food industry labor costs 5-15¢/hr.

Law making an assault on a Food & Drug inspector a federal offense will be sought from next Congress by FDA.

new packages & products

JAM SERVER JAR

FROZEN PATTY SHELLS

LAWRY'S DESIGN IN ABSTRACT

SERVER JAR FOR GOURMET JAMS

Line of gourmet preserves and jellies, packed in an unusual table-server jar, has been placed in distribution on a national basis by J. M. Smucker Co., Orrville, Ohio.

Server container for "Heritage" line consists of a blown diamond-decorated glass jar with a glass lid which is attached to container with a plastic sealing band. Jar is closed with a side-seal closure bearing a distinct coat-of-arms in three colors against a white background.

Jars and glass lids are supplied by Owens-Illinois (405); sealing lids by White Cap Co. (406); and Cel-O-Seal bands by Du Pont (407).

PATTY SHELLS FROM MAGGIE RUDKIN

Ideal for party dishes like chicken a la king, lobster newburgh, or strawberry shortcake are these frozen puff pastry patty shells introduced by Pepperidge Farm, Norwalk, Conn.

Long but compact carton features a front panel photo of golden brown shells direct from the oven. Four-color photo in exclusive Fidel-I-Tone fine screen lithography is on specially coated bleached sulphate board. "Pf" logotype, in stunning black and yellow, produces instant brand identification.

Carton is designed and printed by Lord Baltimore Press (408); sulphate board by International Paper Co. (409).

DRESSING MIX DESIGN IN ABSTRACT

Lawry's Foods, Los Angeles, has added Bleu Cheese to its line of salad dressing mixes all wrapped up in a glistening package with a semi-abstract vignette reverse printed in seven colors on acetate.

From outer layer inward, heat sealable pouch is formed by acetate, foil, paper, and another layer of foil. Paper and inner foil are joined by a polyethylene extrusion to add an extra protective feature. Vinyl heat seal coating is applied to inner foil.

Bleu Cheese joins Lawry's Italian, Old Fashion French, and Garlic Mixes in national markets.

Milprint is supplier (410).

REDESIGN BOOSTS SALES

Sales of Fradelis Food's frozen dinners are reported nearly doubled since line's 12 items have been merchandised in completely redesigned packages.

Los Angeles firm gives much of the credit to the new-look designed and produced by Container Corp. of America.

The 12 four-color cartons—one for each type of Fradelis dinner—

feature an easy-opening perforated tear strip, a color coding system identifying each dinner, and new logo and trademark.

Front panels carry a color photo of contents with varied backgrounds. Back panel has easily-read directions plus premium information (411).

PERFORATED FOIL PIE PLATES

"Perfescape" foil pie plates for baking "better tasting pies with dry, fully baked bottom crusts," have been introduced by Chicago Metallic Mfg. Co.

Pin-point perforating is claimed to assure complete release of trapped air and provide a better, faster bake on bottom crusts. Greater area of perforations is also said to improve heat penetration and minimize reflectivity of foil.

Plates (8 in.) have 135 downward pin-point perforations evenly located at bottom and sidewall and 9 and 10-in. foils have 71. Medium deep and extra deep plates are available in 8-in. sizes as well as regular and extra deep 9 and 10-in. sizes (412).

STYLED FOR GIFT MARKET

One of 16 elegant, new gift packages from Paul Masson Vineyards, Saratoga, Calif., is this unique and imaginative Connoisseur Selector Box, containing six-tenth bottles of outstanding red, white, and pink table wines.

A flick of the dial reveals a description of each type of wine, how to serve it, and how to use it in cooking.

Retailing in the $5 price range, smart package is just one of line aimed at upcoming holiday wine sales boom and the $1 billion gift market.

Jerome Gould, Los Angeles, is designer of Selector Box and other Masson attention-getters (413).

FILM POUCH FOR DEHYDRATES

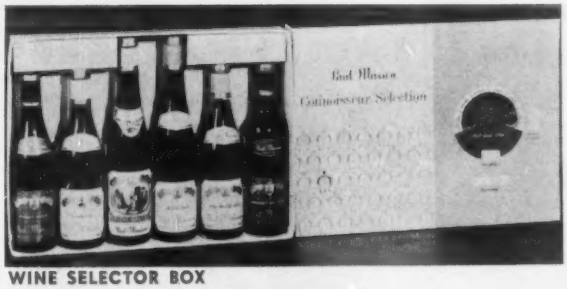
Offered free to any manufacturer is the idea for this new water-immersible pouch for foods requiring rehydration.

Based on boil-in-bag principle, pouch has holes at each end which permit water to enter for rinsing and softening of dehydrated food. Heat-sealed in place, 2-in. end folds peel down to uncover holes. As water enters bag, product expands

(continued on next page)

RESTYLED FOR SALES

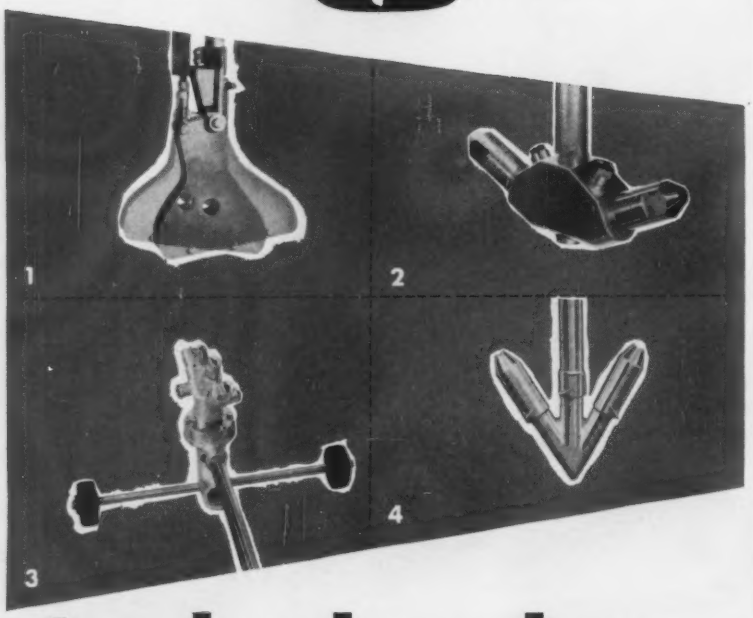
PERFORATED PIE PLATES



WINE SELECTOR BOX

REHYDRATING FILM POUCH

The big PLUS SERVICE EXPERIENCE RESEARCH PERFORMANCE in Oakite



tank cleaning

–four good ways to get spotless interiors

Send equipment into the tank, instead of a man, and get consistently good cleaning . . . increased sanitation efficiency. Whether it's put to work in holding tanks, processing vessels or over-the-road tankers, the right Oakite mechanized method will quickly pay for itself. Choose from these four:

1. **Oakite ROCKER SPRAY** has a reach that seeks out every inch of surface of giant, clean-bore tankers up to 42' long—floods it with a soil-removing spray, leaves it bare-metal clean.
2. **Oakite TANKER SPRAY** handles tankers in the 12' to 22' range. One man easily sets the unit in a tank dome; then lets it save cleaning time and money. Four overlapping sprays saturate entire interior with soil-banishing solution.
3. **Oakite WHIRL-SPRAY** with five foot handle works through side of holding tanks. Wide angle nozzles on self propelled rotary head hit top of tank with vigorous spray which floods down sides.
4. **Oakite V-SPRAY** inserts into holding tank from small top opening, gives saturation coverage to assure sanitary surfaces. Spray converges on top, cascades down sides, carrying soils along with it.

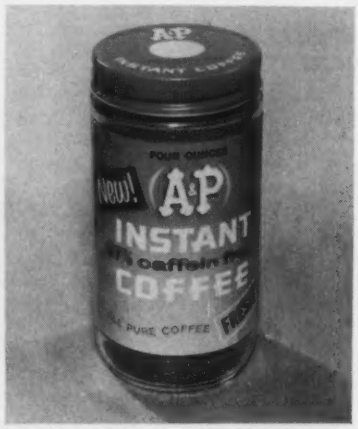
The Big PLUS in Oakite

Working with Oakite brings you the latest information on modern cleaning equipment, on methods and products that do the job right. Ask the Oakite man to demonstrate mechanized cleaning in your plant, or send for Bulletin. Oakite Products, Inc., 26G Rector Street, New York 6, N. Y.

OAKITE SCIENCE
over 50 Est. 1909 years' leadership in industrial cleaning

and package expands right with it. Water is then easily drained through holes.

Minnesota Mining & Mfg. Co., suppliers of bag's Scotchpak polyester film, plans no patent for novel bag which has appeal to dehydrated food producers (414).



CAFFEINE-FREE instant coffee market gets new addition with "97%-free" item from A&P, retailing at 69¢.

Packaging Briefs

Santofome, flexible plastic film manufactured from styrene foam and priced competitively with paper, has appearance of kidskin, and is said to be waterproof, sanitary, lightweight, non-abrasive, and grease resistant. Monsanto Chemical Co. supplies film for frozen foods, wrappers, and liners. (415)

Contour Bags of heat-shrinkable Mylar polyester film, providing clear and strong skin-tight wraps for processed meat and poultry products, is announced by Du Pont. (416)

One-pound bacon carton packaging system at Armour's San Francisco plant features more efficient production, greater capacity, and simplicity of operation. Cartoner from Container Corp. of America is basic unit. (417)

New Product Shorts

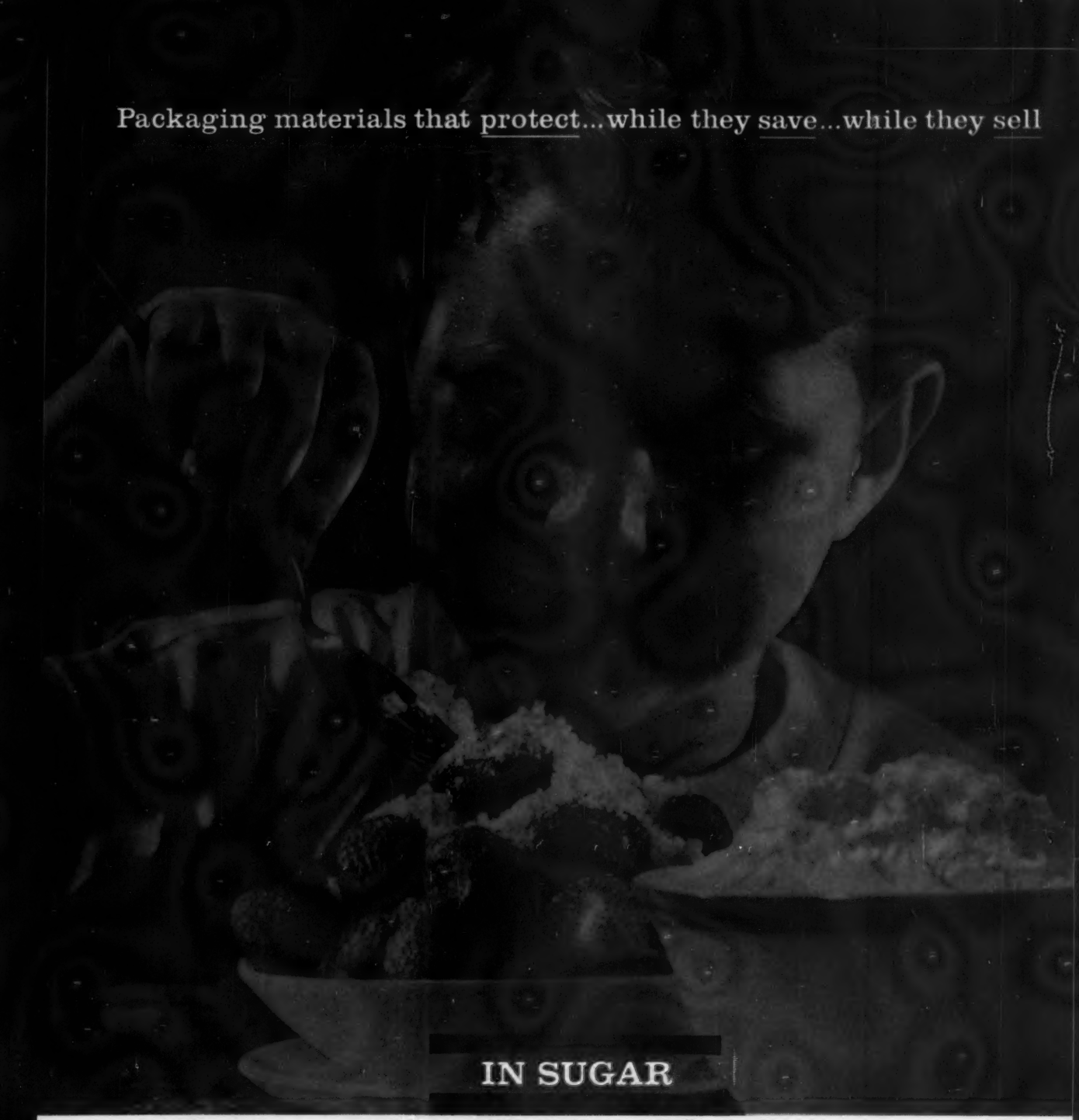
Low Calorie Italian Dressing from Kraft enters national market after rigorous taste testing in 100 homes.

Minute Potato Salad Mix and **Minute Lyonnaise Potatoes** brings to four the number of dehydrated potato products offered by Jell-O division of General Foods under Minute brand name.

Oven Ready Scalloped Potatoes are latest in instant line from R. T. French Co.

CIRCLE 26 ON READER SERVICE CARD
CIRCLE 27 ON READER SERVICE CARD ➔

Packaging materials that protect...while they save...while they sell



IN SUGAR

4 OUT OF 5 BUY Riegel

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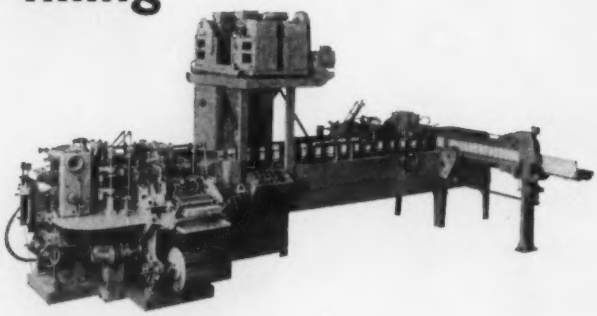

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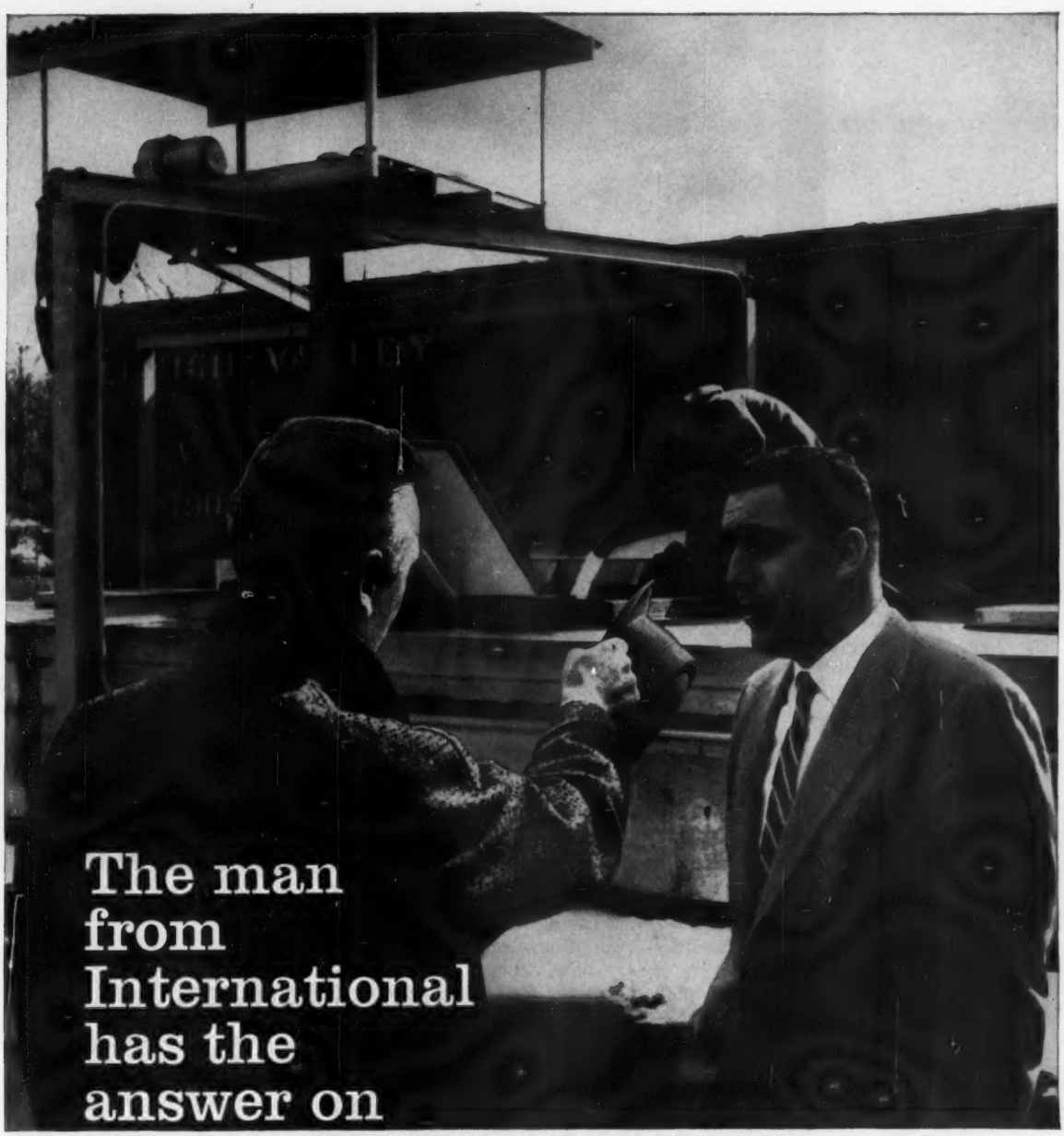

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Additive Problems Sharpen as March 6 Approaches

"Beware of March 6!" has again become a timely warning. On that date, food additive extensions terminate. And further extension is not permitted under the law.

FDA has granted 3,040 extensions, according to Deputy Commissioner Harvey. This is a measure of the magnitude of the problem faced by the food and chemical industries. March 6 is very near in view of the job to be done and the time required for FDA action on petitions.

FDA carries heavy work load.

Commissioner Larrick tells FE that FDA is working desperately hard to keep on top of the additives situation. It is adding 25% more personnel—from 1,660 to 2,199. New facilities are being provided, also, as the budget increases from $15,271,000 to $18,262,000.

But recent passage of the new color amendment piles still more work upon Larrick and his associates. So FDA will continue to be badly overloaded.

Petitions cannot be acted upon quickly. In one case, the time involved in processing petitions on two related products was more than 500 days.

Time is being lost, too, by petitions to have additives declared GRAS. Although a substance may be a very safe one, its safety may not be known to the scientific community. And as FDA Counsel Goodrich observes: "A safe substance may lack general recognition because only negative results have been obtained in experimentation, none of which warranted publication."

There is a difference between a product generally recognized as safe and one which can be proved safe by assembly of scientific data. The first is exempt. The latter is not.

The old informal FDA clearance which preceded the additives amendment of '58 no longer may be issued. Additives can achieve lawful status only through the petition and regulation process prescribed by the new law.

A flock of new complications have been added by passage of the color amendment. This is particularly true because the amendment applies to all substances capable of imparting color—even natural food ingredients. Nor is there a grandfather clause exempting colors given prior sanction or those considered safe on the basis of long usage.

If a food ingredient imparts color, but is not used for that purpose, the manufacturer should request FDA to issue a regulation. Such regulation would state that the ingredient is not subject to the licensing provisions of the law.

Deadline should be extended.

With their old additive and new color problems, many a manufacturer will not have ingredients cleared come March 6. So what will happen?

FDA has established no policy. But here is Deputy Commissioner Harvey's personal opinion: "Those who have done nothing are entitled to no further extensions. But there may be a sound basis for legislation providing additional time where long-term studies are under way and obviously cannot be completed before the March deadline."

There is logic in Harvey's reasoning. But inasmuch as FDA could not handle all petitions required to clear the slate by March 6, a general extension should be legislated.

The date should be put off for another year. And the extensions should contain an open-end provision for additional postponement at the discretion of the Secretary of HEW.

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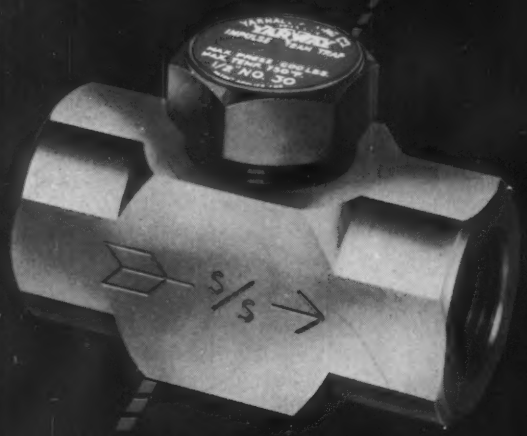

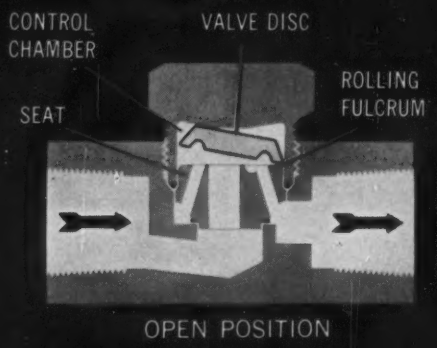

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PART I—

Pay-Off from Aluminum vs. Tin Showdown —Cheaper, Lighter Cans On The Way

Heated scrap between metals suppliers means lower container costs for food makers . . . Meanwhile, do-it-yourself can-making gains momentum **(see p. 36)**

FOOD ENGINEERING

HOT WAR between aluminum and tin cans in food store freezer cabinets packs a big bonus for food manufacturers — cheaper, lighter cans are sure to follow. Enhancing this attractive prospect are these key developments:

► **Gradual swing to aluminum cans for the upcoming '60-'61 frozen orange juice pack.** A FOOD Engineering check of Florida concentrators indicates that as much as 52% of the 6-oz. pack may be put up in the lighter metal.

► **Strong counter-attack by a new thinner, lighter tinplate — which has already slashed the price of food cans by $1.62/1,000 below the level for conventional 75-lb. food tins.** This cost reduction, plus the plate's potential shipping economies, may brake the trend to aluminum cans in Florida.

► **Debut of a radically new composite "can" made of foil-laminated paperboard, with a built-in can opener.** Although strictly an experimental model, its low-cost implications are highly significant.

► **Installation of the first in-plant can making facility by a citrus processor** (see p. 36 for inside details of this move).

THAYER C. TAYLOR
Associate Editor, "Food Engineering"

Citrus In Transition

There's no doubt that Florida citrus groves give aluminum the kind of battlefield it has long aimed for.

Clustered together in the southeastern pocket of the country, packers face long hauls to important consumption areas. This makes shipping costs extra critical, and gives aluminum's lighter weight a strong talking point. Also, the plant's proximity to one another stimulates standardized practices, thus simplifies the educational and checking work needed to get a new packaging material off the ground.

Thus, aluminum suppliers are driving hard to get a bandwagon movement rolling.

Except for Minute Maid (which has scheduled a minimum run of 50 million), name-brand outfits shy away from any wholesale switch in can types. Libby, McNeill & Libby, which test-packed close to 100 million aluminum cans last season, says "plans are far from settled." And Birds Eye insists "it will be some time before a decision is reached."

Based on packers' replies to FE's survey, it's possible that 52% of the 6-oz. pack will be put up in aluminum. These participating firms represent 75% of the orange juice capacity in Florida.

If the final pack-share is anywhere near that level, it will be a hefty surge over last season's usage rate. One source figures that aluminum containers accounted for 13% of the 1,572,000,000 6-oz. units put up in '59-'60.

A critical complication that clouds all forecasts is the amount of tinplate inventory on hand—which differs from firm to firm.

One of the larger concentrators told FE his on-hand tins represent half of forthcoming needs. Two other outfits hope to clean up inventories around Jan. 1, while a fourth expects to work off stocks by Feb. 1.

A Florida source contends that total tinplate inventories come to 17% of next season's needs. One of the Big 3 can-makers puts supplies much higher—at 25%.

With this kind of inventory to

work off, Florida Canners Assn. recommended that "cans with aluminum bodies and 75-lb. tinplate ends are the best type of 6-oz. containers presently available."

Of course, other factors are involved, too. For example, as one can-maker states, the combination type "is sturdier than the all-aluminum type, hence takes transportation abuse better." He is echoed by a juice packer who points out that, productionwise, retaining the tins ends means fewer adjustments to high-speed capping machines. And a third outfit believes that such lids minimize the denting drawback of the all-aluminum can.

Most of aluminum's hopes are pinned to the 6-oz. size—which siphons off the preponderant bulk of frozen orange juice. But some firms, including Florida Citrus Canners Cooperative, will test-pack 12-oz. aluminum cans. Last year, it's estimated, this size accounted for 171 million tins.

Who Calls The Shots?

If packers are divided as to how deep they'll go into the aluminum can, it's a sure bet that the powerful chains will plump hard for the lighter metal. The reason for that is hard-headed economics.

Under the packers FOB pricing system, chains pay the freight on orange juice shipments. Hence, the lower shipping costs cited for the non-ferrous metal appeal to price conscious chain buyers. In this connection, it's worth noting that about two-thirds of all frozen orange juice sold moves under private label.

For example, it's generally assumed that a case (48/6 oz.) of filled aluminum cans weighs 3 lb. less than a carton of tins—24½ lb. vs. 27½ lb. According to Pres. Sidney Alterman, whose company (Alterman Transport Lines) is one of the biggest citrus juice haulers going, the rate on a truckload of frozen orange juice from Florida to New York City is $1.68/cwt., and to Chicago it's $1.89/cwt.

He estimates it generally takes 1,000 cases to make up a truckload. If all-aluminum cans are used, that figures out to a savings of $58.40 per shipments to New York, and $56.70 for individual hauls to Chicago.

Putting it another way, Paul Murphy, Reynolds Metals general manager of packing sales, reasons that "freight costs on all-aluminum 6-oz. cans average about $1 per thousand less than all-tinplate for national distribution. An aluminum body can with tinplate ends consists of about 60% aluminum and 40% tinplate, thus reducing the freight savings proportionately." And an Alcoa spokesman chips in with the estimate that if the concentrators switched 100% to all-aluminum cans, it could conceivably knock $1½ million off the freight bill.

However, there's one possible hitch to these arguments. While the $58.40 and $56.70 cutbacks spell good news for shippers, they also mean less truckload revenue for haulers.

Thus, there's a better than even chance that motor carriers will revise their rates upwards to offset the reduced payloads. And with the shipping spread thinned out, the aluminum vs. tinplate conflict will be decided on respective container merits.

For the time being, though, the shipping factor will rate high with the chains. For all the packers contacted by FE agreed that the price concessions offered on aluminum cans will not result in lower FOB prices.

Handsome Bait

Price cuts on aluminum containers were first offered by can makers last season to stimulate greater usage of the light metal. Some sources opine that the reductions were timed to halt a nascent threat by concentrators to fabricate their own cans. While Minute Maid is the only juice packer to take the plunge so far, Reynolds insists that "other leading firms are actively considering a similar move."

Presently, the price picture is a scrambled one—and will remain so until final prices are set Dec. 1. Tins made from 75-lb. plate are said to be around $20.40/1,000. Compared to this, aluminum body cans with one tin end are $1.26 cheaper, and those with two tin ends are $1.01 less. However, some of the concentrators told FE they're getting their aluminum cans at $1.50 off the tinplate quotations.

And Continental Can was reported as tentatively announcing that all-aluminum cans (.008 gage) will be $2/1,000 cheaper than 75-lb. tins.

Big puzzler in all this price-letting is: Who is taking the sacrifice. Canmakers insist the cuts are being made all the way back to the mill level, but aluminum suppliers, denying this, contend that fabricators are bearing the brunt of the price cuts.

One big supplier put his case thusly to FE: "No price concessions have been offered by the aluminum industry, and none are contemplated. We're following the industry's commodity price on aluminum citrus can stock, which has not changed in the past year.

"This price level is based on large-volume production demanded by this market—nearly 80 million lb. of aluminum sheet would be needed to supply the concentrator's needs, based on '59 data. Our prices are set at a realistic level to insure a profitable return, both on shipments for the '60-'61 pack and for the long-range program ahead.

"Two factors apply here—the price aluminum producers charge the can companies for degreased can sheet, and the price quoted by can companies for finished concentrate cans. On a yield basis, the price for aluminum sheet is competitive with 75-lb. tinplate, the competing material for this end-use. The recent price increases for alloyed aluminum ingot and some mill products do not affect the aluminum used for cans. It's the can companies which have elected to price aluminum concentrate containers below tinplate levels."

Can-makers don't buy this argument. One of them gave FE this rebuttal: "The commodity price at which the aluminum companies are providing sheet aluminum for frozen citrus returns to them practically nothing for the cost of converting ingot to sheet. It's likely that they have a fabricating loss, which they're apparently willing to accept for the time being due to the disparity between current production capacity and the amount that can be disposed of in conventional aluminum markets."

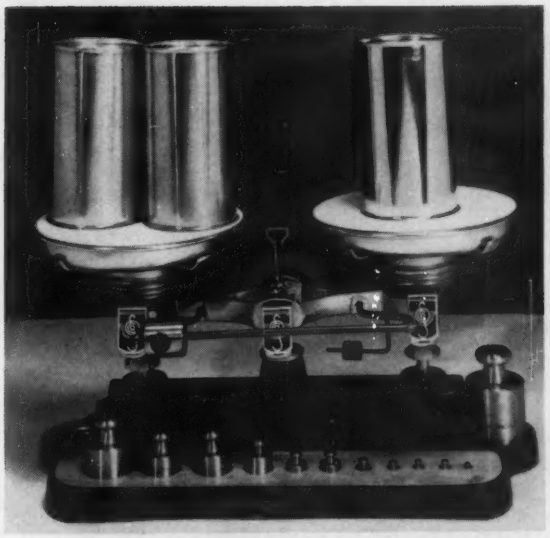
As for the can parts being furnished Minute Maid for that packer's make-your-own program, Reynolds says there are no built-in concessions. Price for can parts is the commodity level plus standard lithography charges, according to Reynolds.

Check & Counter-Check

In any event, all this price-quartering spells good news for food packers. For it puts the heat on suppliers to prune packaging costs even further, as witness these two striking developments—

New Package Cost-Cutters

FOIL-LAMINATED paperboard "can" has inner vinyl coating and overlap seam. Pull tab is welded to aluminum can end for easy opening. (Alcoa). Kaiser will soon unveil a competitive shallow-drawn can with a reusable pull-tab opener.



SLIMMER TINPLATE comes in base box weights of 45- to 60-lb. vs. 75- to 100-lb. for conventional food cans. Sanitary tins made from new plate are $1.62 per thousand cheaper than previously used cans.

U. S. Steel's thinner, lighter tinplate (Ferrolite), and Alcoa's composite paperboard "can" with aluminum ends (Safe-Pack).

Both advances are frankly touted by their makers as representing low-cost packaging for food packers. While Alcoa declines to put a price tag on its experimental container, an industry observer points out "you can safely bet it will be cheaper than the aluminum can — otherwise Alcoa wouldn't have wasted any development time on it."

And U. S. Steel's innovation carries the rollback on costs even further. For citrus cans made from the new 55-lb. plate will be $1.62 cheaper per 1,000 than those made from 75-lb. plate—and similar price thinning can be expected for other commodity tins. However, some products like beer, with their internal pressures, will still require 75-lb. tin ends.

Furthermore, Ferrolite tins go a long way in shaving the weight savings claimed for aluminum. One source figures that a case (48/6-oz.) of frozen orange juice Ferrolite tins will be about 2¼ to 2¾ lb. lighter than a case of 75-lb. tins. He also feels that while a Ferrolite tin may still cost slightly more than an all-aluminum can, "it will be a sturdier container." "To make an aluminum can equally sturdy," he argues, "you'd have to increase the gage to .010—and that would boost the cost considerably.

How successful Ferrolite will be in blunting aluminum's gains in the forthcoming frozen orange juice pack is problematical. Although USS said that the new tinplate (which comes in 40 to 60 lb. base box weights vs. 75 to 100 lb. for conventional food cans) is rolling from its mills, can-makers say the stream is just a trickle. One big fabricator says he's been able to get just enough to keep his laboratory busy. Then, too, because of the plate's newness, fabricators face tricky handling problems.

Zip-Open Cans

The second stiff challenge to all-aluminum cans is a composite 6-oz. container of aluminum foil laminated to paperboard, with an overlap seam, and can ends of aluminum sheet. A joint venture of Alcoa and United Shoe Machinery, the unit is being tested in Providence, R. I., by Minute Maid.

A special feature is the built-in tear-out opening device: A thin scored metal strip around the circumference of the top that is pulled free by the consumer. A loop finger opening that acts as pull tab lies flat on the can's top.

Alcoa stresses that large-scale usage is aimed for the '61-'62 pack season. However, the firm believes that the can is readily adaptable for dried products and such items as sardines, tuna fish, soup, canned meats—but not for any products requiring more than 180 deg. heat or strong internal pressures.

Structurally, the container has an inner vinyl coating, foil laminated to tag stock, and an outside scuff coating. Can specs would differ from product to product, Alcoa says. Filling speeds are the same as for conventional tins, the supplier states.

The Providence test is designed to gage the container's consumer-use pattern, as well as what structural changes may be necessary. For example, it's possible that present specs may have to be beefed up to withstand handling abuse.

One source feels that the container will require tear-tape shipping cartons that would eliminate the need for using a knife (the customary store practice). Since the can is made of paperboard, chances of cutting it with a knife are increased.

To get a better indication of consumer reaction, no special advertising is being used to push the paper can. Also, its retail price is the same as that of conventionally tin-packed products. (Turn page)

PART II—

Can-Making Moves Ahead . . .

. . . in big citrus field as Minute Maid test-runs first mobile set-up for 3-piece aluminum cans. Factors to weigh if planning same step

WHAT HELPED ALUMINUM throw its light weight around and get noticed fast was Minute Maid's pace-making test run last spring with aluminum cans at Auburndale, Fla. Joining this development, Reynolds Metals Co. supplied lithographed, flat aluminum bodies (sheets) with separate tops and bottoms for the assembly of three-piece 6-oz. cans. This assembly was done in a portable can maker housed in a trailer.

When the experimental runs were concluded, Minute Maid announced full-scale commercial use of aluminum cans, beginning with the 1960-61 packing season in December. Thus, Minute Maid joined the growing list of captive can-makers in the food industry—and the first among concentrate packers.

Output Critical Factor

Before food manufacturers climb on the captive can-makers "bandwagon," they must ask themselves: "Is my production volume high enough?"

As a potential can maker you'll need a large investment in can making machinery. But unless your production volume is high enough, can-making will be unprofitable. A volume of 40,000,000 cans annually has been estimated as a break-even point. Below this, can-making appears to be a losing proposition.

And if you're thinking of making your own aluminum cans, you should be aware of aluminum's product limitations. Aluminum 3-piece cans are presently limited to "cold-pack" items such as frozen concentrates. This is because of aluminum's thermoplastic side seam. Unlike tin-plate, aluminum cement seams may not withstand high internal pressure and heat produced by hot processes.

But there is a possibility that besides "cold-pack" applicability, aluminum 3-piece cans may be used for "dry-pack" products. Where aluminum's features are desired in the package and packing does not entail heat or pressure build-up, a product may very well be packaged in aluminum. Such products may be solids or semi-solids. Even liquids without heat packing may be so packaged.

Mobile Unit Developed

A mobile unit was designed for Minute Maid's experimental run at Auburndale. This comprised two aluminum-bodied trailers, one for housing can-assembling machinery, and the other for aluminum stock. Can-making machinery made by Baldwin-Lima-Hamilton Corp., Philadelphia, adapted for aluminum by Reynolds engineers, was set up in one trailer. Flat printed bodies, separate tops and bottoms supplied by Reynolds, were housed in the second trailer.

Such mobile units for can-making may be used by other food manufacturers on a temporary or permanent basis—temporarily, if a processor contemplates trial runs, permanently, if he has several plants in one area, or in different areas. By wheeling such equipment from one plant to another, a single assembling unit can be used.

In the Minute Maid unit, the machinery was placed on a false floor so that it could be skidded out of the trailer and into a plant. The can-making machinery used at Auburndale will be permanently installed this fall.

Here's how it worked: The two trailers lined up with Minute Maid's packing lines to form one continuous operation. The cans were assembled, fed into packing lines, filled with concentrate, capped, quick frozen and cased at a rate of about 450/min.

Future production under Minute Maid and Snow Crop labels will include eleven other products besides orange juice, at a stepped-up rate of 650/min.

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Otoe Food Products
Nebraska City, Neb.
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Stokely-Van Camp
Indianapolis, Ind.

Technical Problems Arise

Aluminum's lightweight, nonmagnetic and surface properties pose some problems in actual operation. Therefore, FE conducted its own, small survey among citrus canners to find out about some of these problems first-hand.

For one thing, vacuum pick-up can replace magnetic controls, thus solving the non-magnetic difficulty. Other difficulties occur in the conveying and closing of aluminum cans.

According to P. L. Grant, asst. to V.P. production, Snively Groves, "Contact between steel conveying equipment and aluminum sets up

ALEX K. PORIANDA
Managing Editor, "Food Engineering"

friction causing closing difficulties and sluggishness in the conveying lines. Aluminum oxide also builds up on steel plates and requires frequent cleaning of packaging machines. All of which slows down the production line. These obstacles are overcome by chrome-plating the conveyor plates and by adjusting the closing machines to handle aluminum cans."

Chrome-plating may not be necessary. However, Marvin H. Walker, gen. mgr., Florida Citrus Canners, told FE, "Other materials, less costly than chrome-plating, may avoid slide trouble, but are less permanent."

These are some of the problems. Others may arise. But as W. F. Edwards, exec. V.P., Pasco, put it, "The extent of these problems can only be determined after long continuous runs of aluminum cans."

What Can Manufacturers Say

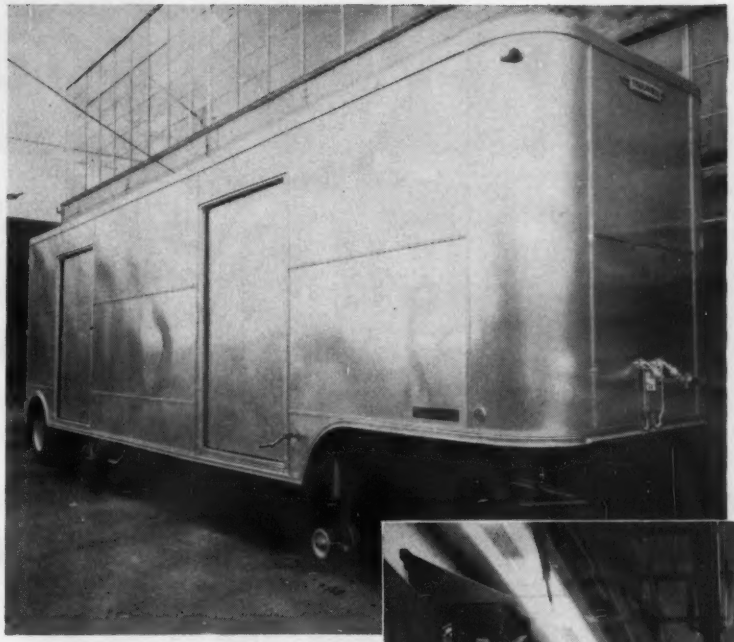
Can-makers feel that aluminum is still in the experimental stage. They, themselves, have not yet completed all of the manufacturing tests and test packs necessary for aluminum to be considered a standard material in can manufacturing. They feel that individual canners do not have the equipment, resources, and personnel required for successful conclusion of such tests. Further, they feel that present heavy investment by canners in can-making machinery may result in a future loss if (1) the machinery becomes obsolete because of technological advances now in development, and (2) products using aluminum turn to other materials, or container styles.

Two other factors could cause difficulties. In the event of plant breakdown, canners would have to call on suppliers for help. In such an emergency, suppliers may not be able to meet canner's requirements on time. And if there were a shortage of aluminum, reconversion to tin-plate production would be time-consuming and costly.

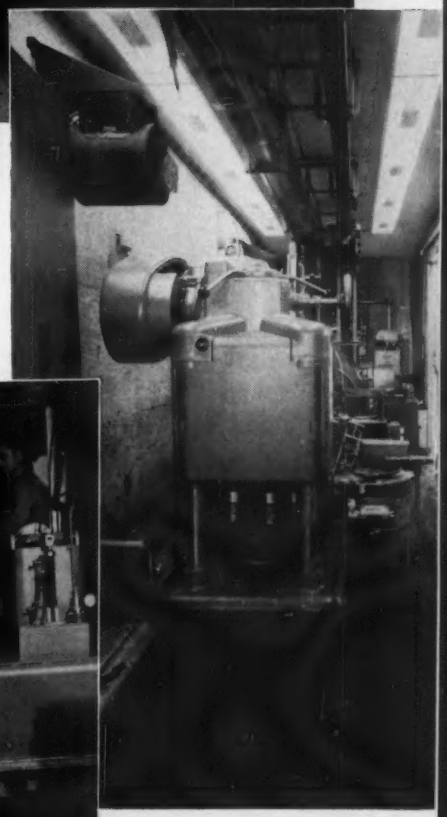
Aluminum's Arrived

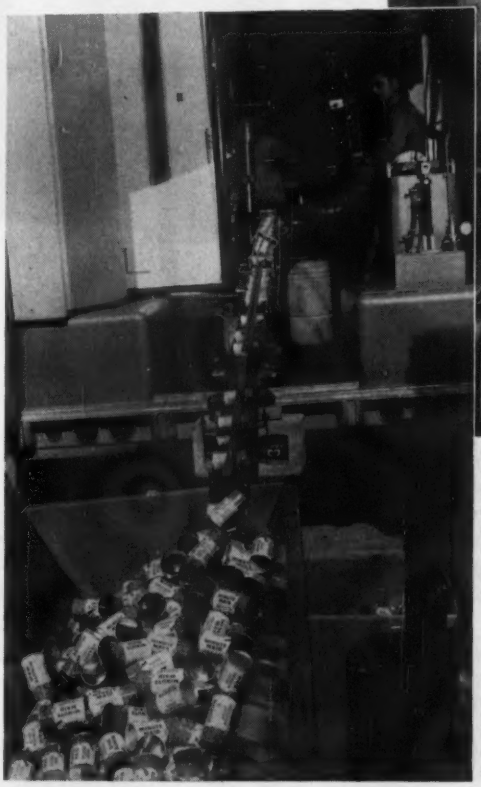
As for Minute Maid, an estimated 50,000,000—almost all of the standard 6-oz. containers to be used at Auburndale—will be made of aluminum. Moreover, its machinery no longer in a mobile unit but permanently installed, Minute Maid plans to pioneer in-plant can assembly methods.

It looks like the aluminum can —self-made by canners or otherwise — has come to stay in the citrus concentrate industry. (End)



TWO TRAILERS like this were hooked up with Minute Maid's packing lines to form single-line operation. One trailer housed can-making machinery, the other stocked flat aluminum bodies, tops and bottoms.





OPEN-END VIEW, looking into trailer housing can-assembling equipment. Units installed were flanger, body-maker and double-seamer — with aluminum stock being fed from other trailer.

FINISHED ALUMINUM CANS rolled into bin with conveyor belt bottom which sped them to the plant's packing lines. Cans were asembled at rate of 450/min.

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WE BELIEVE that management has both the duty and the right to take a hand in the political welfare of the nation—for its own good and the good of its employees. Both corporately and individually, it must do its level best to supply, support, and foster political and civic affairs understanding. The food industry's voice must be heard as loud as any other in our free enterprise system—not just in this year's election but in the decades to follow. This FE report of food company activities makes plain that, while some firms are conscious of the need for political awareness, much more can and must be done to sustain our economic welfare.—The Editors.

Protect Your Future—

Politics IS Your Business

Special report points up some of the methods many food firms are using to encourage employee political activity. Variety of techniques will help you better fulfill your role in improving business understanding

THE QUESTION of management's role in politics has been argued in executives suites, in the press, and in conference with numerous political and public affairs experts.

As yet, it is still not completely resolved. For some firms, the very word "politics" casts a shadow of fear across the corporate mind. But this number is rapidly diminishing as more and more members of top management are taking the plunge and either encouraging political awareness by employees or actually seeking public office.

JACK L. MISCHOU
Assistant Editor, "Food Engineering"

And the food industry, too, has a number of firms active in encouraging employee political action—though caution is the watchword in all cases.

An FE check of 30 leading food companies uncovered a wide range of attitudes on this particular subject — from healthy programs through "watch and wait" attitudes to, unfortunately, almost completely negative policies.

In 10 of the really big companies, no policy at all is available. In three or four others, only lukewarm attention has been given to any direct or indirect corporate activity.

But, in several, top management has shown an attitude of leadership for all industry to follow not only in this election year but the years to come.

A prime example of this enlightened thinking is the Pillsbury Co., now thoroughly enjoying the fruits of a public affairs program geared to employee education.

Pillsbury officials have encouraged and actively supported enrollment in the Action Course in Practical Politics sponsored by the Chamber of Commerce.

Company pays the registration fees, and the participants attend two hour class sessions once a week—one hour on company time. Although a survey is not complete, Pillsbury spokesmen report that several people who completed this course are now active in political activities.

This course was followed up by several more, and will not stop after the coming election. In the words of A. L. "Bill" Powell, firm's PR chief, "our interest is not just a temporary thing—it must be continued on through this year,

EMPLOYEES IN ACTION are typified by above Ralston Purina group in midst of a practical politics class at Decatur, Ill., plant. At right, precinct captain and Armour personnel department staffer Ray Beardsley gets out to meet the voters in suburban Chicago.

next year, and every year after that."

Pillsbury also actively encouraged its employees to vote in the Minnesota primary by distributing literature on times and places, using the bulletin board to call attention to a "Register and Vote" campaign, and supplying each employee with a colorful tag reading, "I Will Vote, Will You?".

More to Come

As time goes on, firm intends to adopt and express a point of view on certain public matters through the company magazine, through letters to congressional representatives, and through distribution of news releases.

From big Swift & Co. comes this statement: "Over the years, it has been the policy of Swift & Co. to encourage, on a non-partisan basis, interest and activity by employees in the responsibilities of citizenship and the importance of voting."

"Frequent communication with employees, aimed at interest and awareness in public issues and at fostering intelligent voting includes employee publications and various letters distributed to management people."

Swift also developed two flannel board presentations—speeches abetted by lively visual material. "This is Our Problem," "The Power of Your Vote," and "The Price of Freedom" were all shown to employees and community groups.

Through its company magazine, Armour & Co. makes plain its views on political action: Firm encourages employees to be active with the understanding, of course, that it does not interfere with operation of the business. This feeling applies to all parties, all factions and candidates, even though some of them may have been critical of Armour or its industries. "For one thing," policy points out, "opinions as to what is good and what is bad for Armour may differ considerably. For another, an Armour employee in the inner circle of a political group may be able to guide the group's thinking in a constructive way.

"We believe that it would be an excellent thing for our company and for business generally, if many more people associated with major corporations were active in both major political parties."

Armour does feel that its employees should not be granted extra favors just to vote. "All political activity, from voting to holding public office, should take place on the individual's own time. A good citizen doesn't expect pay for voting." In instances where state laws require that employees have time off to vote, Armour readily complies.

As regards actual party work where an individual requests time to work for a party or candidate, "Armour managers will do their best to grant the request on a basis which will create minimum financial hardship. Hours of work will be rescheduled when possible or an absence may be charged against vacations or other earned time off. However, we cannot do anything which might lead to a charge that Armour & Co. is engaged in party politics."

Emphasize Caution

Armour emphasizes that "Congress and the states have restrictive laws in this connection. One Federal statute, for example, makes it a prison offense for an individual or company having a contract with the United States to make any contribution 'directly or indirectly' of money 'or any other thing of value' for political purposes.

At Wilson & Co., Board Chairman James Cooney remarks that the meat-packing firms "has always encouraged its employees to participate in local, state, and national politics, not only by voting in all elections, but also by taking an active part in various political activities. Many of our company's

A Case History in Political Awareness

HERE'S HOW one food company approaches the subject of business in politics. Its philosophy and activity, as reported to FE, may assist you in creating a continuing program of civic affairs awareness in your company—

"California & Hawaiian Sugar Refining Corp., San Francisco, has been interested in the field of businessmen in politics for several years. Presently, we are offering to our employees, on a voluntary basis, the opportunity to participate in the Action Course in Practical Politics as prepared by the U. S. Chamber of Commerce.

"Following the initial course given to executives last spring, three separate classes have been organized and more are scheduled in the weeks ahead. Although all employees have not yet been offered the course, we have received nearly 50% acceptance by those thus far contacted. Opportunity has been given to not only top level management, but all 180 headquarters office employees, and 50 professional and supervisory people at our Crockett, Calif., plant. It is interesting to note that labor union representatives are also enrolled and participating with vigor.

"We have not finalized our policy as to time off for political activity. We are hopeful that many will be active on their own time during the forthcoming election, and state and local elections thereafter, by assisting the party of their choice in precinct work, campaigning, clerical, etc.

"Our public relations department has been responsible for this activity, but planning has been coordinated with the personnel and industrial relations departments.

"We try to impress upon employees the realization that more of us should become responsive voters and citizens. Our hope is that our action will result in better government through better understanding and knowledge of candidates and issues.

"We sincerely hope, too, that businessmen, as a result of a rekindling of interest in politics, will become active in elective and appointive Boards and Commissions in their communities; that they will bring their skills, knowledge, and ability into active participation in public affairs. Already, several C&H executives have become active as precinct leaders, members of planning commissions, etc.

"We feel strongly that all segments of our economy, especially top business leaders, should be actively represented in the forms and art of government."

employees serve as poll watchers, election officials, and in various elected and appointed local government posts."

However, chairman cautions, "We believe that as a widely-owned corporation with stockholders holding varied political opinions and employees adhering to different political parties, it should not participate in partisan politics."

The big H. J. Heinz Co. approaches politics through a comprehensive program of employee education.

Back in Sept. '59, firm offered the Chamber's course to all Pittsburg home office employees. Over 500 office employees participated in three of these 9-week courses.

Following completion of the courses, all "graduates" received a letter from the company urging them to participate actively in party politics in the present campaign.

Various other means of supplying information include:

1. Letters are sent from V.-P., Charles Heinz to all employees who have become 21 years of age since the previous general election to point out the importance of registering to vote.

2. Two large posters provide information for unregistered employees.

3. Editorials and news stories about politics and about the election are and have been included in the employee newspaper—"The 57 News." Included in the November issue will be a tally sheet to help employees keep up with election returns.

4. Letters outlining the new absentee balloting provisions effective this year for the first time in Pennsylvania were sent to all executives who might have to be away from home on Election Day.

5. Following September's registration, bulletin boards were used to publicize announcements of political rallies, general information about absentee balloting, and publicity for the "Don't pass the buck — Give a buck" campaign. Contribution cards are placed in nearby racks so that employees may take cards and make contributions to the party of their choice.

Firm makes every effort to grant reasonable time off for political activity when it does not seriously affect an employee's work. Partisan politics are tabu during working hours and no campaigning is allowed on company property.

Campbell Speaks Out

Campbell Soup Co. has some definite feelings on the subject of employee political activity and politics in general.

While stating no formalized policy, like many others, Campbell encourages all employees to participate in community and government activities as long as it does not interfere with their regular duties in a major way.

And if an employee should become actively engaged in political activity such as being elected to a legislature, Campbell also grants leaves of absence.

Firm does maintain strict guard against company support of a particular party or candidate. Says a Campbell spokesman, "We believe there is risk of great damage to business if business were to meddle in politics in this manner. Needless to say, we think it highly important that our company not be labeled as favoring any one party as a regular thing."

But Campbell also knows the need for business to make itself known to legislatures in federal, state, and local government when actions are proposed or taken which affect the company's welfare. "In this regard, we encourage our executives to know government people so that our views can be effectively presented when necessary. We attempt whenever the opportunity presents itself to develop a better understanding of business on the part of legislators. On occasions, we have expressed our views on important major national issues such as inflation to our employees and stockholders. This activity will be continued."

While extremely interested in national issues, especially in the field of labor and taxation, most of Campbell's activities are directed at local issues because of unfavorable business climates that occasionally exist in some areas of operation.

Campbell sums up what most business managements are begin-

ning to understand—that business should have a voice in government. "We are hopeful that our activity will bring about a greater recognition of the importance of efficiency in government and fair treatment in legislation for all segments of our population."

While some large food firms, in reply to FE's check, stated they prefer programs and encouragement to come from the branch level, one of the most effective company-wide methods of encouraging political activity by all employees is through the house organ. An FE check of several employee magazines found various references to the need for political awareness from Oscar Mayer, Foremost Dairies, John Morrell, Green Giant, Pet Milk, Ralston Purina, General Mills, California Packing, and several others.

Then, too, many management people from the food industry are getting out and learning more about how they can improve their programs and define the corporate role in political activity.

Briefed at AMA

This very topic was the subject of a recent briefing session of the American Management Assn. in New York, which drew leading executives from all phases of industry.

And co-chairmaning the meeting were two food industry management people—Bill Powell of Pillsbury, and Robert F. Groves, director of personnel relations at the Glidden Co., another food firm which has made employee political education a "must."

Most impressive talk of the day was presented by Pillsbury's Powell, who summed up:

"Politics is the practical exercise of self-government, and somebody must attend to it if we are to have self-government. The principal ground of reproach against any American citizen should be that he is not a politician."—Elihu Root

"People say the business of business is business, and nothing else. Business will never achieve a 'hands-off' situation, but they can keep that fist open-handed and complimentary, instead of close-fisted and contradictory. This requires a political maturity and an open-handedness of our own.

"Business' political-economic role is to be understood and accepted. This is no *ipso facto* right, constitutionally imposed. It is something to be won—to be earned continuously.

"Management must be as successful politically as it must be financially, and the two must go hand in hand. People do not understand that economic welfare and political welfare can go hand in hand, and management doesn't understand the reverse. The cost of political action is far less than any life insurance it can buy. But the economic goals of business must be made compatible with the political goals of society — they can't be different or opposed."

Concerned with the "equivocation" practiced by still too many managements, Powell points out that "Business cannot simply expect to survive. It must persuade, cajole, influence, argue, and in some cases antagonize certain quarters in order to come through. It cannot practice Narcissism."

But he also emphasizes that "It is a complex role that must be played with caution. Business must not step out of its bounds, which are basically economic rather than cultural, but so far it has not filled its economic role politically.

"The continuance of free enterprise should perennially be made palatable in political terms. Free enterprise is in the best political tradition of America; there is no reason why it should not continue. It appears that top management is reluctant, but middle management is willing."

If there is a tragedy in this situation, it is that while the goals of business could be so politically popular, businessmen have been incapable of making them so. We can conclude that businessmen have not had to survive politically; perhaps that day may soon come.

Avenues of Approach

Various employee courses have been and will continue to be offered by the Chamber of Commerce, National Assn. of Manufacturers, and local and regional groups. Republic Steel Corp., General Electric, Ford, and other large industrial firms have formed their own programs and have offered assistance to other interested firms.

Joseph J. Eley, president of Public Affairs Counsellors, Inc., NYC, heads a group established to provide guidance services on political and governmental affairs to business firms and other groups.

He believes that the corporation's role is primarily that of a catalyst: providing an opportunity for employees, salaried and hourly, to learn about the political system and thus encouraging people to become precinct, ward, and county workers, as well as delegates to county, congressional district, state and national conventions—each to the party of his choice.

It's as much "people in politics" as "business in politics," says Eley. Either way, it is necessary.

(End)

Pillsbury Takes an Interest

RECOGNIZING that big business has as big a stake in the political and civic affairs of the country as any individual or group, if not more, The Pillsbury Co. makes plain this policy toward employee participation in the national, state, and local arena:

"The Pillsbury Co. realizes that its employees should be responsible members of the communities in which they live. Consequently, it views with approval their leadership in those community activities dedicated to the maintenance and improvement of a healthy community life.

"We expect that when Pillsbury employees find unusual opportunities for leadership which may require occasional absence from work, they will discuss thoroughly acceptance of this activity with supervisors and managers, responsible for programming their work.

"We believe, further, that active participation in political affairs is the responsibility of all citizens. Pillsbury employees should be concerned about the political health of our American society and should exercise positive influence wherever possible to see that the best people available are nominated and elected to public office from both parties.

"Occasionally, unusual situations may develop where Pillsbury employees themselves are urged to become candidates for public office. When such a situation arises, the individuals concerned should discuss the matter carefully with their supervisors. Whenever it is consistent with programs of corporate growth, the company will make every reasonable effort to approve such active participation in political affairs without jeopardizing the stability of the job relationship involved."

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Of specific interest to mix manufacturers is G-D-L's observed low level of activity in storage and at the mixing stage. There is very little loss of leavening power throughout normal shelf life and carbon dioxide release during mixing is slight. The gas is developed mainly at the elevated temperatures of the baking cycle—a distinct advantage where a chemical leavening action can be used and where long shelf life is a factor!

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Investigate G-D-L for use in such products as MUFFINS, DANISH PASTRY, RAISIN AND OTHER BREADS, ROLLS, BREAD STICKS AND PIZZA PIES.

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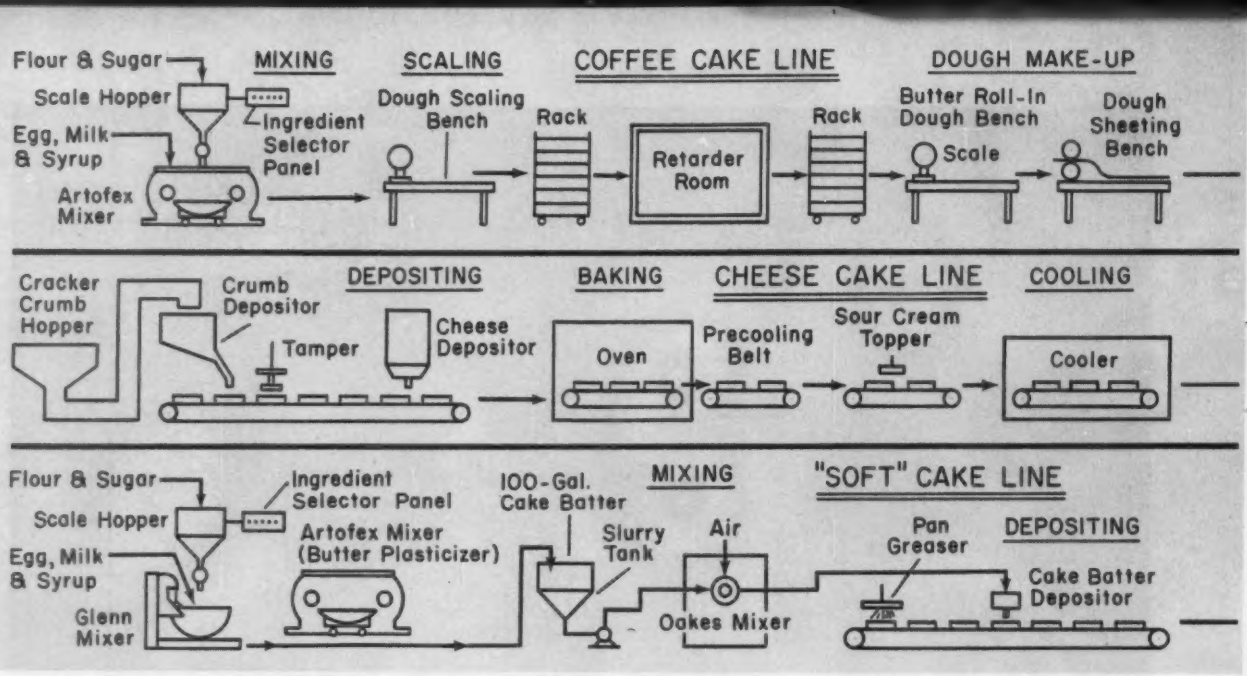


DIAGRAM SHOWS line operations for Sara Lee's three cakes: Coffee cake, soft cake, and cheese cake. High quality begins with lab-checking and careful storage of ingredients, and continues with precise quality control through production.

Lays Quality on the Line

. . . by selecting only the best ingredients stored under sanitary-controlled conditions and processing them into uniform quality cakes with the most advanced equipment housed in a spic-and-span, dairy-like bakery

MAKING TODAY'S high quality, gourmet-grade cakes requires many modifications of the well known cake-making processes. This is graphically shown in Sara Lee's spanking-new $4 million bakery (Chicago) where three production lines roll out one million cakes a week.

Quality control is the byword at Sara Lee. Since their cakes are tender-texture specialty items, most basic product preparation is done by hand. However, mechanization—mostly company designed—is definitely in the picture.

Extreme care is taken initially to assure selection of only the highest quality, lab-checked ingredients that are stored under controlled conditions before being fed to processing. In subsequent stages, uniform blending of ingredients and meticulous process upgrading operations assure final cake quality—detailed in the flow diagram and pictures.

JOHN V. ZIEMBA
Senior Associate Editor, "Food Engineering"

Quality Starts With Ingredients

Sara Lee takes particular care to lab-check all ingredients before they are transferred into storage. Fresh eggs (whole and yolk) are chilled at nearby egg-breaking plants and delivered to the bakery in insulated tank trucks. They are then pump-metered into refrigerated stainless steel dairy-type tanks (Cherry-Burrell). Chilled fresh whole milk is similarly tank-trucked to the bakery for holding in dairy tanks. So is corn syrup that's tank-stored in a 110F. room.

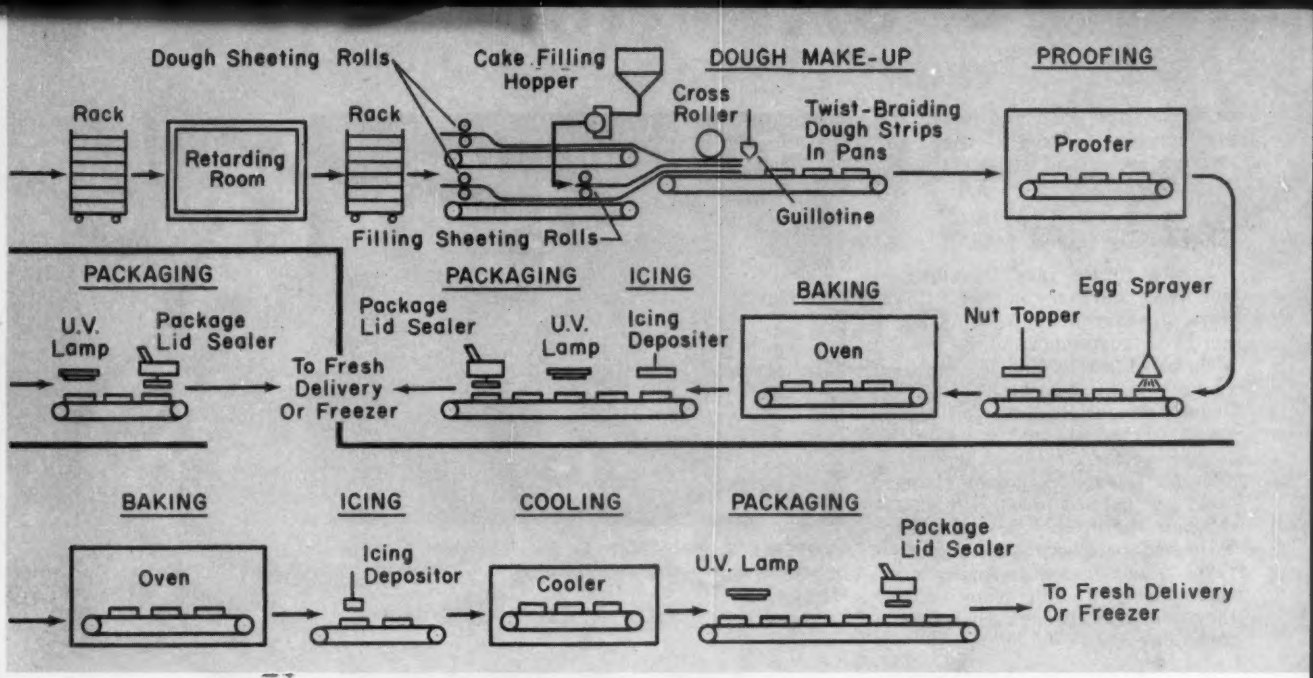
Butter (90 score), packed in 60-lb. cartons and stacked on pallets, is stored in a 50F. room. It is then plasticized in an Artofex mixer prior to going into cake doughs and batters. Other perishables like cream cheese, Dutch-processed chocolate, nuts, raisins, etc., are held in a 35F. room.

Flour and sugar are received in bulk (RR cars), from which they're pneumatically unloaded (Baker-Perkins system) into nine storage bins (three sugar and six flour). Flour is air-conveyed through sifter (Allis-Chalmers) to scale hoppers charging mixers (Glenn and Artofex). Sugar is pneumatically conveyed to mixers in the same way, except a portion is by-passed to a surge hopper feeding a refrigerated pulverizer (Pulverizer Machinery) to reduce to powdered sugar.

At mixers, operations split into three processing lines—"hard" cakes (coffee cakes), "soft" cakes (chocolate, orange, banana and pound cakes), and cheese cake.

Coffee Cake Line

After doughs are prepared in Artofex mixers, they are scaled into 15-lb. portions which are panned and loaded onto racks transferred into retarder room. Plasticized butter is then rolled



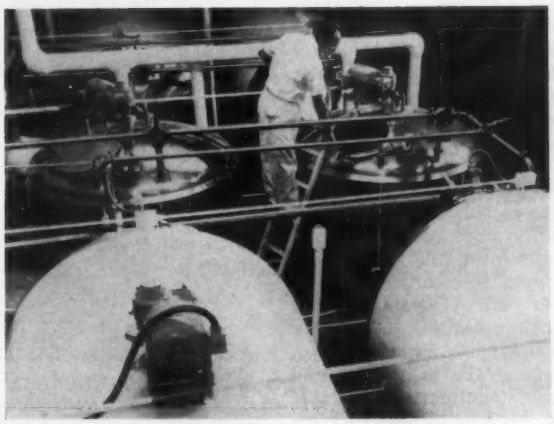
into retarded doughs that are fed through sheeting rolls prior to another period of holding in retarder. Next, doughs are fed to a company-designed, continuous make-up unit that uniformly rolls them into two sheets, with filling deposited on bottom sheet by means of metering pump and a pair of rolls. As sheets are conveyed, they merge and pass under a cross roller and guillotine.

Cut into strips, doughs proceed to next station where they are hand-braided and deposited into foil pans (Ekco-Alcoa). Panned doughs continue through proofer and then under company-built, egg-spraying and nut-topping machines. In final stages, panned doughs proceed through oven and to icing machine and packaging line. Lids are crimp-sealed onto foil containers that are packed into shipping containers for fresh deliveries or into blast freezer.

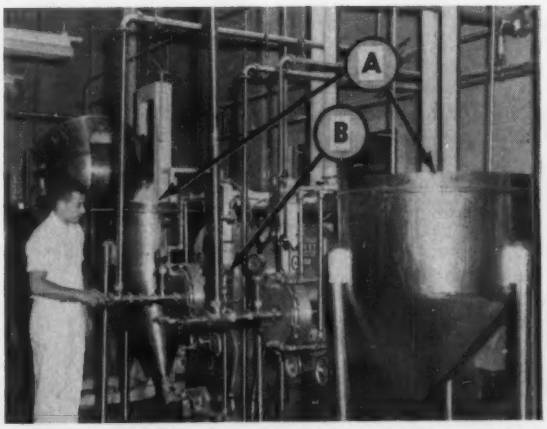
Soft Cake Line

From Glenn mixers, cake batters are hoist-dumped into surge tanks feeding continuous Oakes mixers. Batters are pumped to hopperless depositor (Oakes) that meters uniform portions into belt-conveyed foil containers.

Panned batters are next con-



STORAGE TANKS receive bulk shipments of fresh whole milk, eggs, and egg yolks. They are sanitary, dairy-type with built-in CIP system.



UNIFORM QUALITY cake batters are produced in advanced system with pumping of pre-mix from surge tanks (A) to continuous mixer (B). Batters next flow to depositor.

veyed through oven and under icing machine. Finally, they go through cooler and onto the packaging line.

Cheese Cake Line

Entire cheese cake line operation was devised by Sara Lee. Here, graham cracker crumbs are conveyed from hopper by means of a series of scrolls and bucket elevator to a 2-pocket depositor. Crumbs are scaled into foil pans, evenly spread in containers by a 4-head tamper. A 2-head depositor (Elgin) introduces cream cheese, and the panned goods travel through the oven. They are next by-passed onto a pre-cooling conveyor. Sour cream is finally machine-deposited into pans before they continue through cooler and packaging line.

No Letup at End

Among the important final cake-quality safeguards are:

. . . Employing skilled, high-quality personnel.

. . . Analyzing all ingredients (before approving them for use) and batch-checking cakes in process by quality control lab.

. . . Receiving a major portion of ingredients in bulk to assure highest sanitation practices.

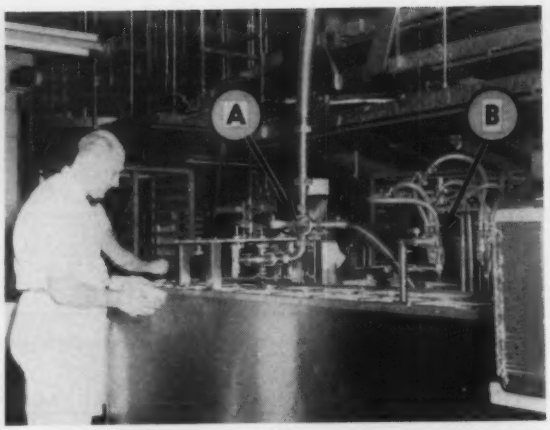
. . . Maintaining all ingredients under temperature-controlled conditions in closed systems, and feeding them directly to processing with minimum holding time.

. . . Installing the most advanced cake-making equipment available to insure production of uniform cakes through all unit operations. Typical are continuous mixers and depositors (both Oakes). Mixers assure more uniformity in control of product temperature, specific gravity and flow. Hopperless depositor feeds uniform amounts of batters into foil "bake-in" containers.

. . . Designing and building special machines that are either not available or don't meet company's "specs." Examples are the entire cheese cake making line, egg-wash sprayer, nut topper, coffee cake icer, cream topper, cake-frosting depositor, and continuous (coffee-cake) dough make-up unit.

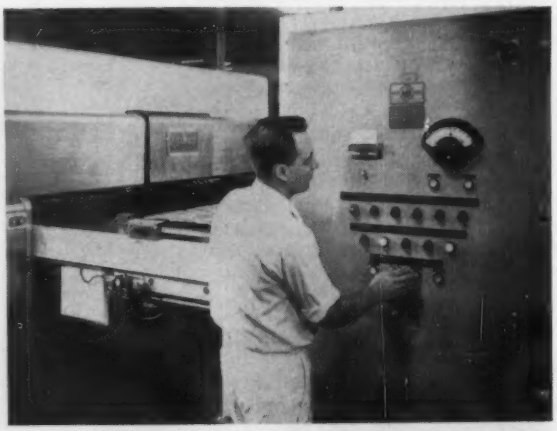
. . . Using variable-speed drives throughout various stages to synchronize line speeds, thereby assuring uniform dough make-up, proofing, baking, etc.

. . . Providing sufficient freezer areas for —30F. quick freezing and 0F. freezer storing. (End)



HOPPERLESS DEPOSITOR (A) that feeds uniform amounts of batter into foil containers conveyed from automatic spray-type pan greaser (B).

CONTINUOUS dough make-up unit on coffee cake line employs rolls (A and B) to reduce doughs into two sheets. Filling is machine deposited onto bottom dough sheet. Both sheets merge and are united by cross roller before proceeding to strip cutter.

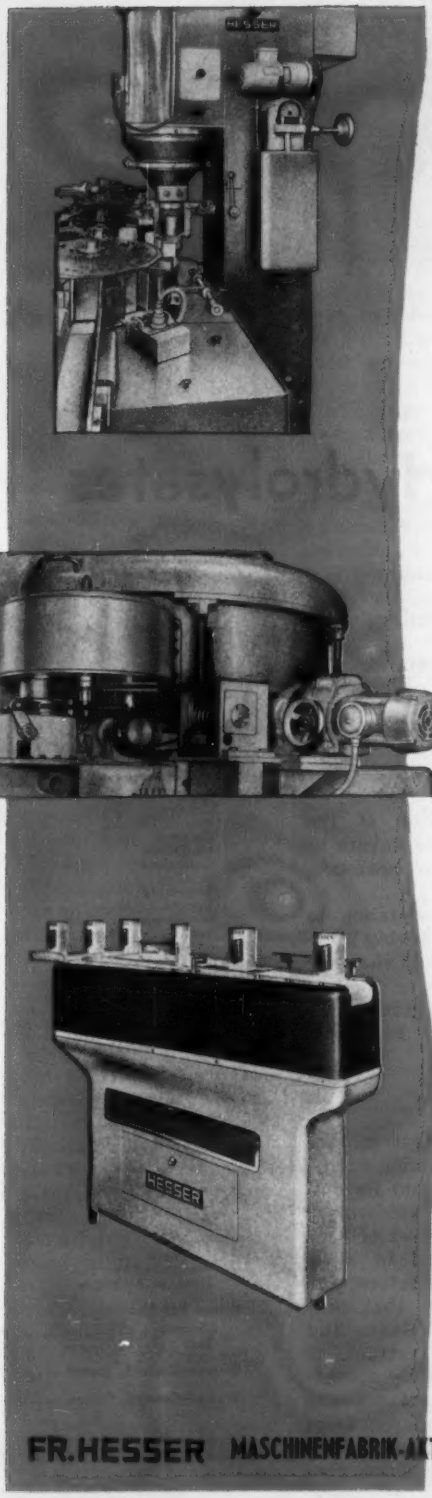


MOVEMENT of panned goods through various process stages is controlled from this panel. Important is the synchronization of conveyor systems through variable-speed drives.

20/2

Accurate Weight Control

with new Automatic



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Check Weighing and Regulating Systems

On fully automatic packaging machines equipped with auger or volumetric plate type fillers volume variations so far had to be adjusted by hand after check weighing individual packages.

With the new electronic weight control and regulation device this is done in a fully automatic way and the weight of the packages is exactly within the selected weight tolerances.

This arrangement can be used for

◀ **auger filling machines**

and for

◀ **volumetric plate type fillers**
incorporated in machines with intermittent or continuous motion.

Another type **electronic check weigher** known as the GP Ia, is available for installation at the discharge end of a packaging machine. This is a self-contained unit with a variable speed feature and tolerance selector. The GP Ia detects over and underweight packages and ejects them from the line automatically-permitting only accurately filled packages to continue.

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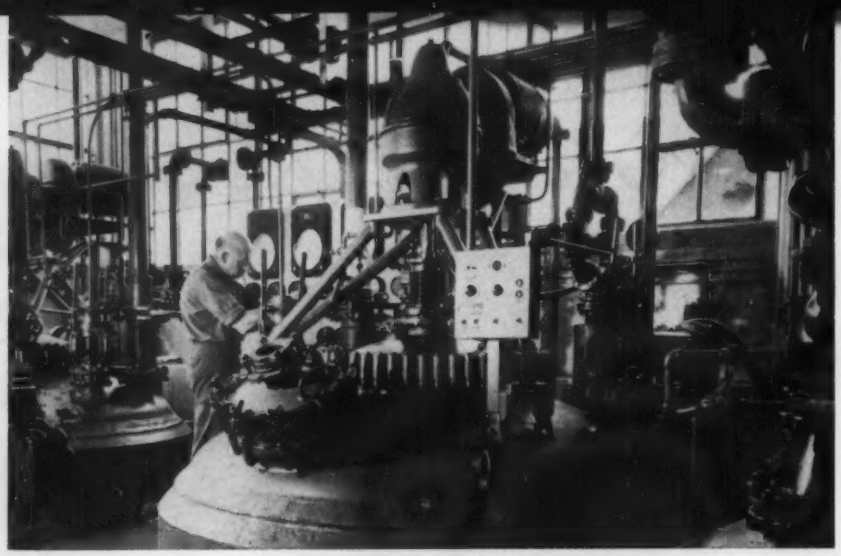

ACID HYDROLYSIS in these reactors converts selected plant proteins to flavor-reinforcing products.

Nestlé Pioneers

'Flavor' Protein Hydrolysates

Astute selection of raw materials, special processing, extensive taste testing 'tailor' new products for specific flavor effects . . . Applications, use levels cited

THAT PROTEIN HYDROLYSATES somehow enhance the flavor of a variety of foods is, of course, well known.

But what is new—and important to food processors—is the recent 'tailoring' of plant protein hydrolysates for specific and reproducible flavor effects. The result is a series of unique products whose improved flavors open new fields for hydrolysate utilization.

Called Maggi Hydrolyzed Plant Proteins, they were launched by The Nestlé Co., Inc., White Plains, N. Y., after extensive process development, organoleptic correlation, and field testing.

In their manufacture, Nestlé is not bound to any particular raw material, but can use any protein source acceptable to FDA. This flexibility plus special processing techniques provide flavor characteristics otherwise unattainable.

Available in liquid, paste, and powder form, the hydrolysates:

1. Uniquely reinforce, at the sub-threshold level, the flavors of soups, meats, poultry, seafoods, gravies, and sauces.

2. Have built-in resistance to further flavor change during processing of foods to which they are added.

3. Are entirely of vegetable origin, and approved by FDA and MID.

Replaces Beef Extract

Nestlé's initial interest in protein hydrolysates as specific flavoring agents stemmed from its dissatisfaction with the uniformity, availability, and high cost of beef extract, which it used in large quantity. Objective, therefore, was to find a replacement that provided an amino-acid balance and flavor similar to beef extract.

Hydrolysates ultimately accepted as beef-extract replacements (4-BE Series) are produced from carefully formulated blends of selected plant proteins. They give

How Hydrolysates Are Used*

Percent Powder by Weight

Soups—Dehydrated, Canned, Frozen	
Beef	0.50
Chicken	0.25
Pea	0.30
Onion	0.50
Mushroom	0.25
Consomme	0.75
Bouillon	1.00
Vegetable	0.65
Tomato	0.20
Minestrone	0.50
Lentil	0.75
Meat Products	
Sausages	0.75
Loaves	0.75
Cured Meats	0.65
Hamburger	0.50
Meat Stock	0.75
Corned Beef Hash	0.75
Seafood	
Clam Chowder	0.25
Fish Sticks	0.50
Shrimp, Fried	0.50
Canned, Frozen Foods	
Corn	0.20
Peas	0.25
String Beans	0.25
Pork and Beans	0.50
Sauces	
Spaghetti	0.50
Worcestershire	20.00
Steak or Barbeque	10.00
Frozen Pot Pies	
Chicken	0.75
Beef	0.50
Gravy—Canned, Frozen	1.25
Stews—Canned, Frozen	0.75

*Recommended starting levels which may be altered to suit specific taste preferences.

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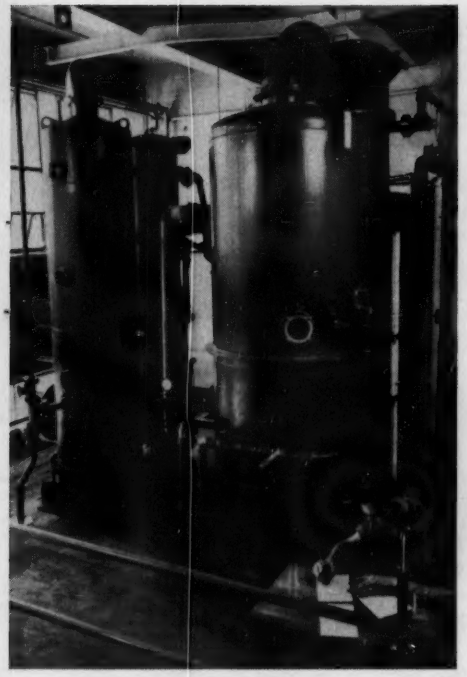
Associate Editor, "Food Engineering"



VACUUM EVAPORATION guards hydrolysate quality. Operator makes routine check.

a heavy beef flavor without the characteristic metallic background flavor of beef extract, bacteria counts are low, and storage stability is excellent.

In a typical organoleptic test, dry soup mixes (beef broth, onion, and beef vegetable) were formulated with basic beef flavor provided by (1) beef extract alone, and (2) various combinations of beef extract and hydrolysate. The triangle test, which requires the taste panel to identify the one odd sample in a set of three, was used.

Data indicated that as much as 75% of the beef extract in each soup mix could be replaced by 4-BE without the panel successfully identifying the odd sample. And the same result was obtained when combinations of beef broth and beef extract were used as the basic flavor contributors. Further tests designed to indicate desirability of background flavors also clearly showed a preference for 4-BE.

Nestlé has established the following relationship for optimum replacement of beef extract with 4-BE:

1 lb. beef extract = 1.66 lb. 4-BE and 0.65 lb. salt should be subtracted from the finished formulation.

Canned, Frozen Foods Too

Success with beef extract led to development of another hydrolysate series (3H). Although primarily designed to be light in flavor and color, it has found its major use in canned and frozen items. The group contains all of the flavor solids in their natural ratio. Amino-acid distribution is not altered by reduction of monosodium glutamate, thus amount of MSG used in most basic formulas may be cut.

One product (3H-1) is partially decolorized for use in light-colored foods (veal and pork), where a medium-strength meaty background flavor is desired. Another type (3H-3) is fully decolorized, light in flavor, and designed for use with fowl and seafoods. Use levels depend upon desired flavor of the end product, but range 0.50-1.75% based on finished weight of product (see accompanying table).

It should be noted that combinations of the various hydrolysates may be used to produce an infinite variety of background and predominate flavors. In this way it is possible to comply with virtually any specific taste preference.

How They Are Made

Hydrolysates are produced in Nestlé's ultra-modern plant in New Milford, Conn. As illustrated in the flow diagram, they are made by acid hydrolysis of one or more proteins. After hydrolysis, reaction mixture is neutralized with alkali, and cooled.

Subsequent filtration removes insolubles, and vacuum evaporation concentrates the liquor to about 43% total solids. Latter is specially treated to improve flavor and aged. Subsequently, it is re-filtered and filled into 55-gal. drums as liquid hydrolysate.

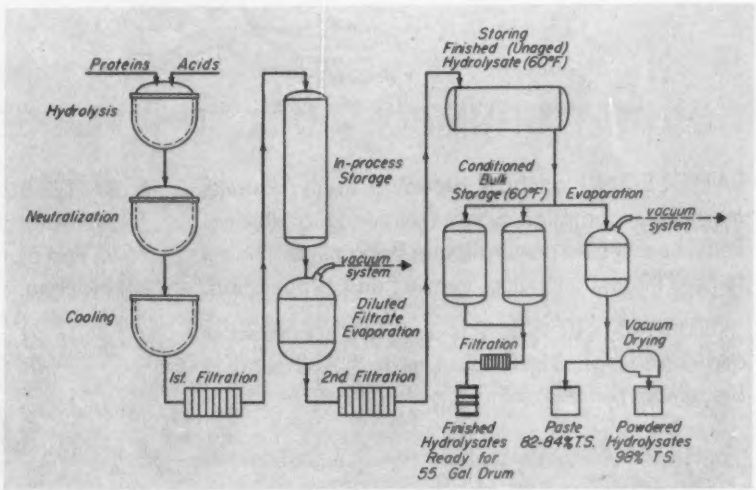
Paste production requires further concentration of liquor to about 83% total solids. In paste form, product is viscous, but of a consistency that is easily handled in existing equipment.

Hydrolysate powder is made by drying the concentrated liquor to some 98% total solids. Here, Nestlé departs from conventional drying procedures in that it employs vacuum drying in this critical step. Their feeling is that only vacuum drying eliminates thermal breakdown of amino-acid constituents and insures complete retention of all flavor characteristics of the initial liquid hydrolysate.

Other Uses Seen

While there is already an impressive list of users of the new products (some in car-load quantity), Nestlé is continuing its investigation of other applications.

Incorporated into batters, for example, hydrolysates enhance the flavor of breaded items, such as poultry and seafood. Another area of intense interest is frozen vegetables, where definite contributions to flavor can be made. (End)



FLOWSHEET traces processing of liquid, paste, and powdered hydrolysates. Plant proteins are acid-hydrolyzed and specially treated to improve flavor. Final vacuum drying, which curbs thermal decomposition, produces the paste and powdered products.

A STARCH SPECIALTY

BATTER-BOND

FOR BREADING MEAT, FISH, FOWL

DOESN'T CRUMBLE • DOESN'T FLAKE • DOESN'T BLISTER

BATTER-BOND anchors breading firmly. Permits moisture evaporation without blistering or flaking. Reduces excessive penetration of frying oil. Continues to hold throughout frying, freezing and refrigeration.

BATTER-BOND is easy to use. Mix it with water and seasonings. Dip food in mixture. Roll food in breading. Then freeze or fry.

BATTER-BOND is recommended for all breaded foods: fish sticks, cakes and fillets, shrimp, veal cutlets, fowl, egg plant, onion rings, etc. Contact your nearest National office for full information.

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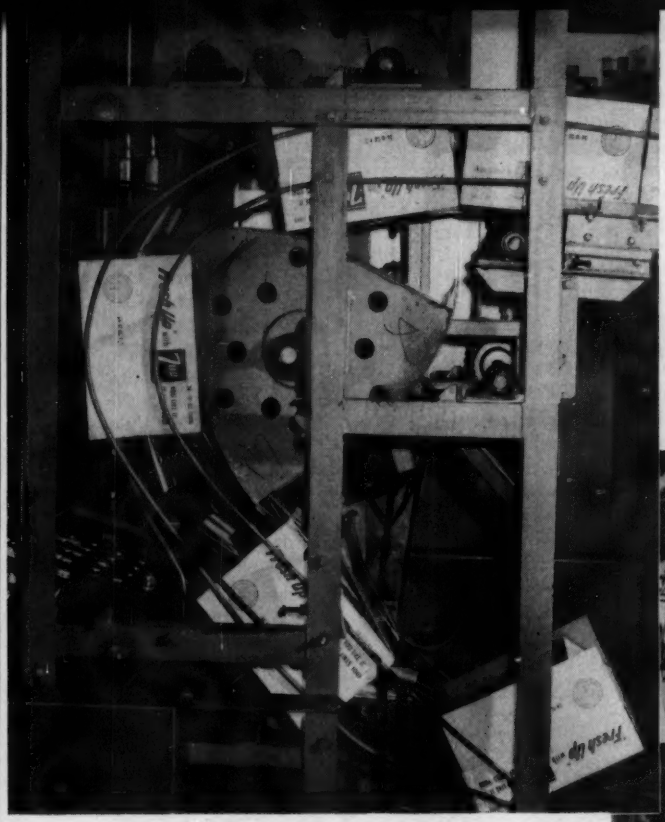
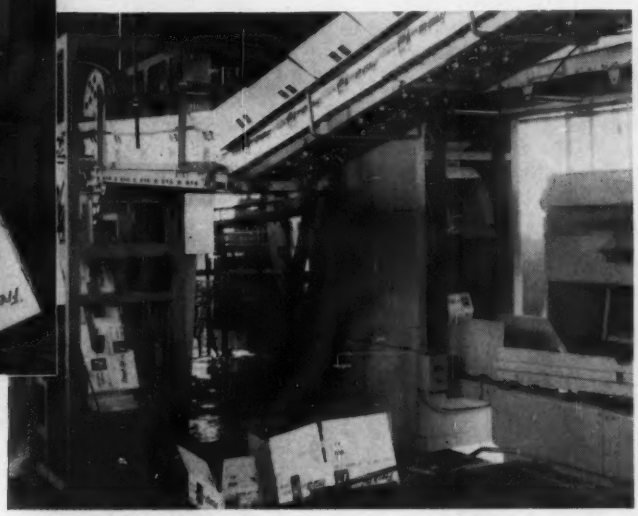


ACTION CLOSEUP of high-speed packer shows cartons entering at upper right, cans at lower left. An ingenious packing wheel flips groups of 24 cans or four 6-packs into inverted carton, then deposits filled case on discharge conveyor (lower right). Packing speeds to 60 cases/min. are attributed to continuous forward motions of both case and product.

COMPACT PACKER, taking only 12 sq. ft. of space, is easily integrated into can lines. Filled cases leave on bottom conveyor.



High-Speed, Compact Unit

Cuts Case-Packing Costs

Its unique continuous-motion design ups packing speed to 60 cases/min., slashes space requirement to 12 sq. ft., and simplifies maintenance

SQUEEZE an extra-high-speed case packer into 12 sq. ft. of floor space?

Sounds impossible, but it was a must at C. Schmidt & Sons, Philadelphia brewer, when about two years ago the company planned to replace two filling lines with new equipment of twice the speed.

Production goals were 540 12-oz. bottles/min. and 640 cans/min. Canned beer was to be shipped in four-flap cases, either 24 loose or in four 6-packs, one layer deep.

Problem was that the larger machines had to fit in the space occupied by the former units, which left little room for case packing. With line speed of 640 cans/min., it was obvious that two conventional packers would be needed for both cans and 6-packs. Not only would each extra unit take valuable space, but additional area must be provided for conveyors when two packers handle one item.

Such space was not available, so one packer had to do the job of two. But where do you find a 640-cpm. packer, let alone one that takes only 12 sq. ft. of space?

That unenviable task fell to Schmidt's Chief Industrial Engineer, J. L. Layton, Jr., who took the 'easy' way out—he invented one, and it more than filled the bill.

Combining extreme simplicity with considerable ingenuity, this automatic packer offers all food processors these four solid advantages:

1. **Capacity of 960 cans/min.** Even higher packing speeds are said to be possible, but unit's top

LEONARD TRAUBERMAN
Associate Editor, "Food Engineering"

limit is still unknown for lack of a suitable challenge.

2. **Substantial space saving.** Exclusive of infeed and discharge conveyors, the 8-ft.-high packer is only 3 ft. wide and 4 ft. long.

3. **Design simplicity,** which minimizes maintenance and costly downtime. For adjustment or oiling, just opening two expanded-metal doors exposes the entire easily understood mechanism. This is particularly relevant in today's high-speed lines.

Because it isn't practical to provide more than a few minutes of surge capacity, quick access to a packer's working parts to take care of faulty cases or product can be the difference between continuous production and downtime at 600-900 cans/min.

Furthermore, this unit's high speed clears the accumulation of containers well before another stoppage is apt to occur.

4. **Automatic operation** that smooths line flow, yet requires only occasional supervision. One operator can easily attend adjacent equipment as well.

Called the Layton Packer, unit is made by Layton Packer Co., 23 Snowden Rd., Bala Cynwyd, Pa.

In addition to handling 6-packs and loose cans of any size, it packs a variety of regular-shaped objects one layer deep in either a 4-flap carton, tray, or tray with flaps. Latter carton is of particular interest because it is similar to a conventional 4-flap case with 2-in. gap, but cheaper than an open-end case.

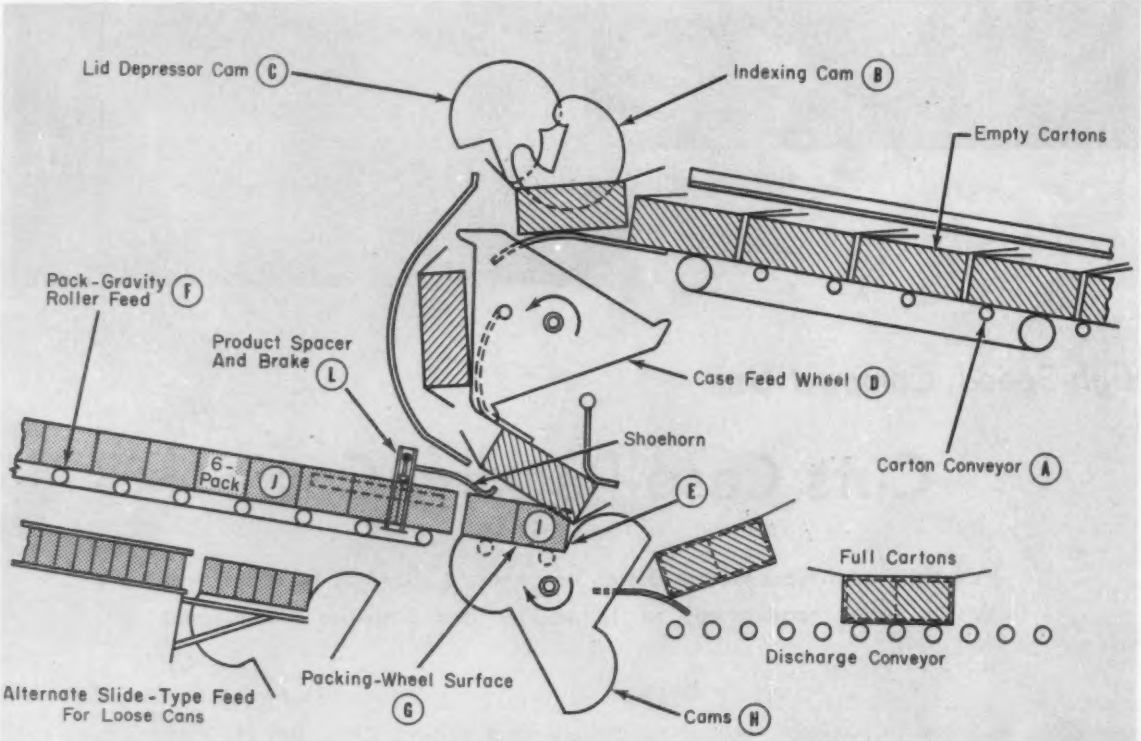
Flow Is Continuous

Packer's unusual design for maximum speed and efficiency requires that cases and product advance continuously. To accomplish this, all reciprocating or intermittent machine motions are eliminated. Unit's operation is divided into three functions—case feed, product feed, and packing.

How it operates to achieve this continuity of forward motion is detailed in the accompanying diagram.

A system of limit switches temporarily stops the machine should either feed of product or empty cases be interrupted. Packing resumes automatically as soon as sufficient cans accumulate and a case is in proper position. Both

(Continued page 54)



How High-Speed Packer Operates

Carton-control conveyor (A, in diagram) feeds empty cases to indexing cam (B), which positions each one while opening its front flap. Cam (C) further depresses the flap and brings case to feed wheel (D). Its rotation inverts and puts case in packing position, with lower end of case in advance of and below top of product, as shown at (E).

Simultaneously, 6-packs from conveyor (F) enter flat surface of packing wheel (G). A cam slide replaces the roller conveyor when loose cans are to be packed.

Regardless of type of pack, product's forward motion is controlled by curved cams (as H), which connect wheel's flat surfaces. As product group (I) is raised for packing, leading edge of next group (J) presses against cam and follows its curvature forward.

Since each curved surface terminates at inside end of succeeding flat surface, product group following the cam registers with flat. Top leading edge of group is against lower edge of case, as shown at (E). Cam design thus gives product uniform lineal forward motion.

Rotation of packing wheel moves product group to the right and upward, and simultaneously pulls a case into packing registration. Product is guided into case by 'shoehorn' (L). As packing wheel continues to rotate, it deposits filled case onto discharge conveyor.

Descale

Cooking Vessels Evaporators Pipelines

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Use non-fuming Dry Acid Cleaners based on Du Pont Sulfamic Acid

EASIER TO USE. Just scoop dry acid cleaners from lightweight, disposable drum into make-up tank. Often can be added directly to food-processing or steam-generating equipment . . . no elaborate apparatus or specially trained personnel required.

SAFER TO HANDLE. These cleaners are dry, non-fuming powders. No danger of broken carboys, spattered liquids, corrosive fumes with sulfamic-based cleaners.

ECONOMICAL. 1 lb. of dry acid cleaner does the job of 1.5 lbs. of hydrochloric acid. You'll save on shipping, handling and storage costs.

LESS CORROSIVE. Sulfamic acid is less corrosive than hydrochloric acid; on brass, 60% less; on steel—70%; copper—85%; aluminum—80%. It is especially "friendly" to stainless steel and, with the proper inhibitor, can be used safely on galvanized steel.

For more information, *mail coupon for free booklet and names of formulators who offer these cleaning compounds.*

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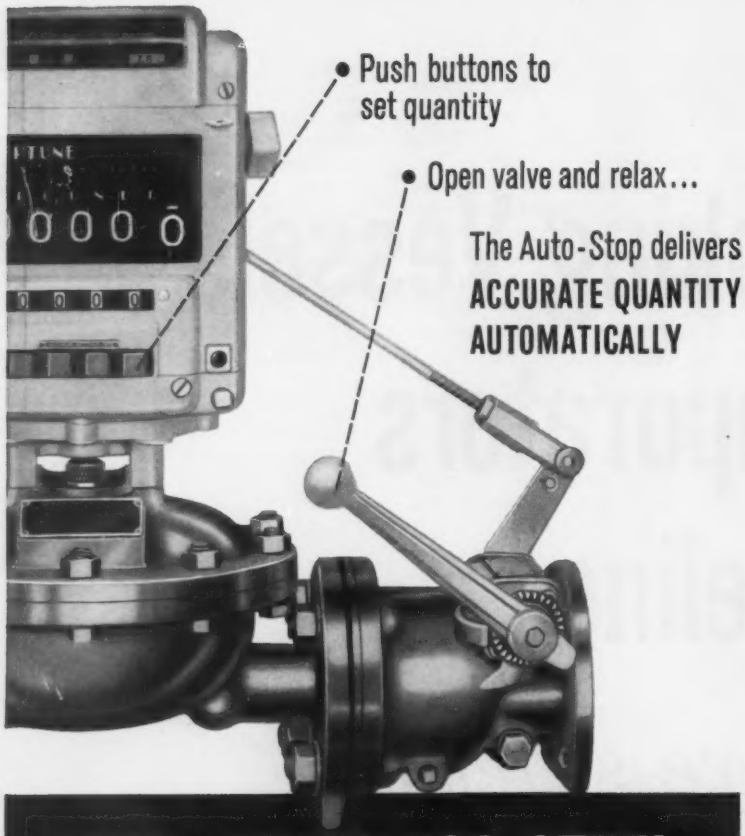
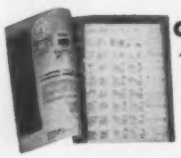


NEW...STAINLESS STEEL AUTO-STOP LIQUID METER

It's here! *Automatic formula control* for the batching of corrosive liquids or liquids that must be kept free from contamination! It's the new Neptune Stainless Steel meter with all-stainless, Auto-Stop valve. The register watches the delivery, automatically trips the valve shut at the exact quantity. Valve is mechanically coupled...no inaccuracies due to time-lag in cut-off.

Saves time, ingredients, labor...puts end to spoiled batches...cleans up hazardous or messy conditions...provides accurate cost records. Accuracy is completely protected from effects of corrosion or corrosive wear. Only two moving parts in meter contact liquid. Gear train is outside the casing, isolated from liquid.

Size 1½", capacity 20 to 100 gpm. Also available with repeating Auto-Stop that "remembers" formula, and with ticket printing and electrical Auto-Switch combinations.



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normal and abnormal conditions are indicated by panel lights.

Another automatic control stops all flow if a case is improperly packed. A red light alerts the operator, who can start the packer by pushbutton after correcting the difficulty.

Actually, the unit has relatively little mechanical-electrical interlocking, which is a maintenance time-saver. To further simplify trouble shooting, the electrical circuit is divided into three parts, each with a bypass button. By holding a button, operator can continue production if cause of a stoppage is failure of electrical controls, rather than mechanical. Furthermore, this technique will quickly indicate the trouble area to the maintenance man.

Who's Using It

The prototype packer and a companion unit have been operating successfully at Schmidt's for two years. One handles loose cans, the other 6-packs.

More recently, Royal Crown Canning Co. installed one in its new Bridgeport, Pa., plant. In so doing, Mr. K. Scheidt, progressive soft-drink canner, provided for a future increase in line speed. Moreover, the packer is neatly integrated with an uncaser and sealer, which minimizes overall operator attention.

In addition, coupling surplus packer speed with surge capacity in the form of a large in-line divided conveyor ups production efficiency. Cans accumulate on divider when trouble occurs at end of line. As operation resumes, packer's extra capacity quickly clears the divider.

Another unit, installed by F & M Schaefer Brewing Co., solved a space problem in its Albany, N. Y., plant. Line speed is 800 cans/min., and packer is fed by a 5-ft. rotary filer that also gives some surge capacity.

According to Mr. H. W. Preu, Schaefer's Manager of Packaging, this packer was chosen for two reasons. First, it was the only type that could possibly fit into the available space. Actually it takes only 30x48 in. of floor space. Secondly, the packer can handle 40 or more cases per min. Currently they are running 32 cases/min. without interruption.

As for performance, Mr. Preu says, "I am very well satisfied with the operation of this packer, especially with the simplicity of its functioning." (End)

CIRCLE 54 ON READER SERVICE CARD

CIRCLE 55 ON READER SERVICE CARD ➔

"Knox furnishes 85% of our juice bottles," says production manager of large cranberry cooperative

"Since Knox first supplied us with glass containers four or five years ago, we have increased our consumption of their bottles from 20 per cent of our total to 85 per cent," says the Production Manager of one of the nation's foremost producers and packers of cranberries.*

"This represents a considerable increase in quantity as well as in percentage, because our cocktail production has gone up 50 per cent since 1957, and has quadrupled since 1950," he said.

"There are two very important reasons why we use Knox Glass in such a large proportion. First is their bottle quality—we have enjoyed a tremendous reduction in breakage over the last four years. Glass breakage is not a real problem with us any more.

"The other benefit we enjoy from using Knox is their extremely dependable delivery. They deliver when they promise they will—and this dependability has allowed us to reduce our own bottle inventory from 50,000 cases to 15,000 cases for emergency use only.

"We've found we can depend on Knox."

Contact the new/Knox Glass for your glass container needs: Knox Glass, Inc., Knox, Pa., or any one of 37 sales offices.

*Name available on request

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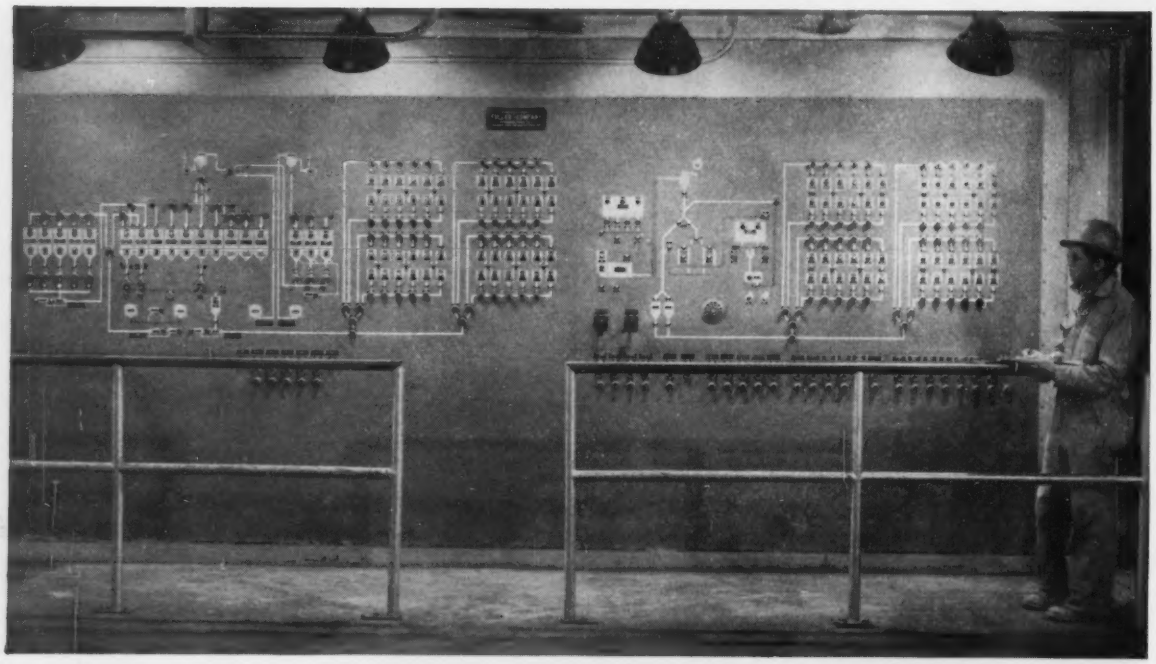

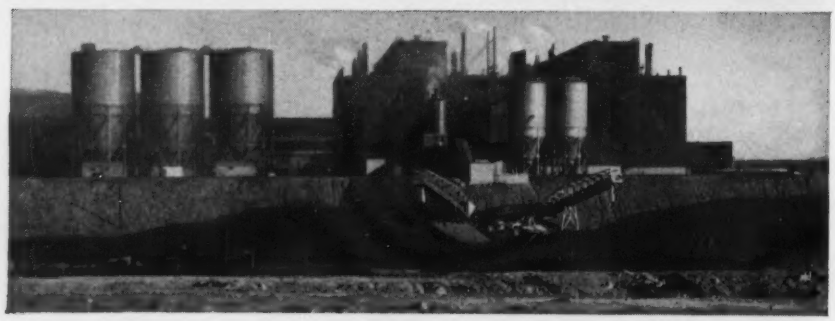

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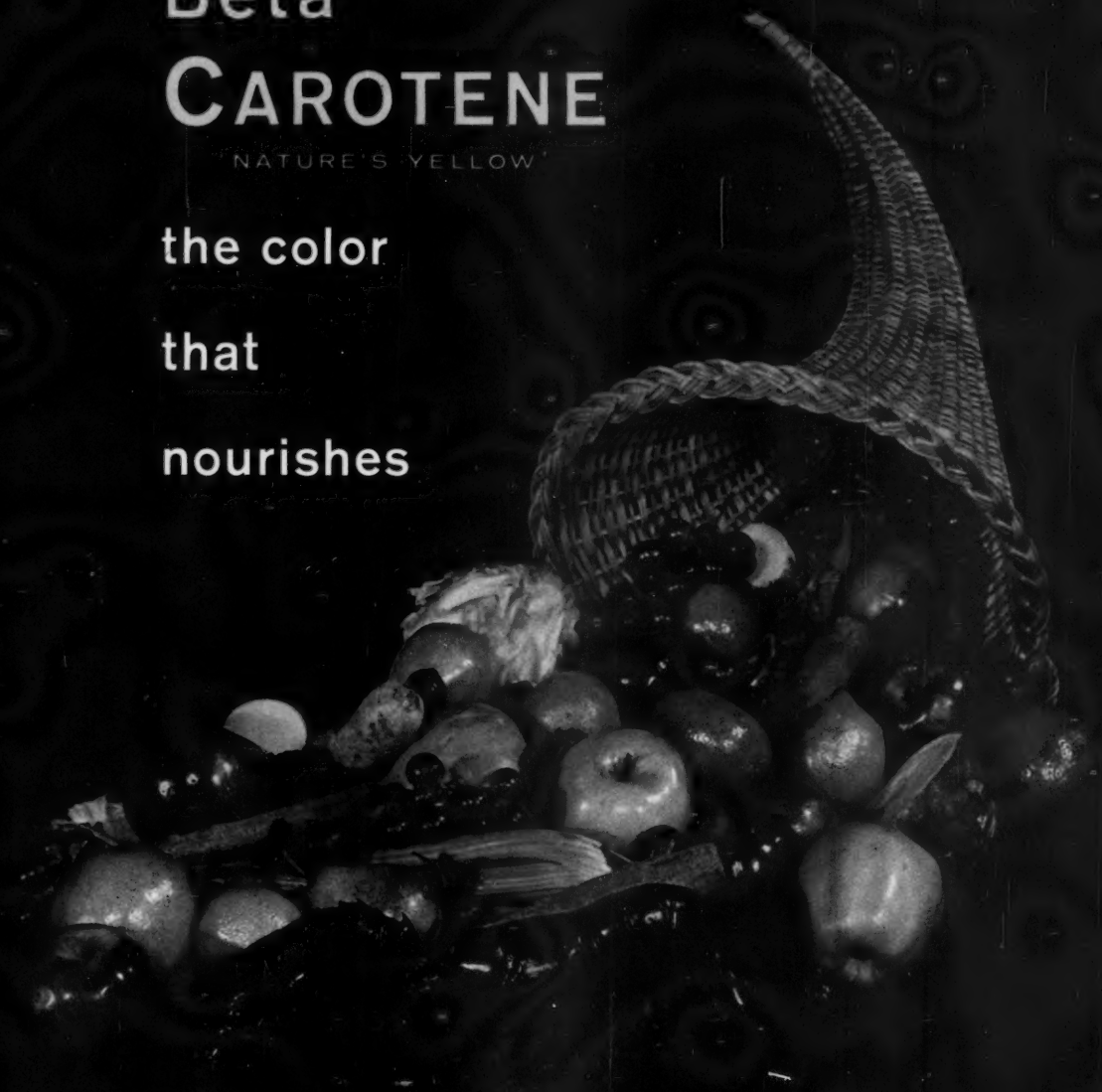

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PRACTICAL IDEAS

Diversifies Evaporator Use

Many older triple-effect evaporators are unsuited for processing low-heat milk products because of the 170-180 deg. F., temperature required in the 1st effect. This limitation may be circumvented by operating the 1st effect on water, using vapors (170 F.) to operate the 2nd effect. But, from an engineering standpoint, this is uneconomical.

Greater evaporator efficiencies are achieved if milk intended for a high-heat product is processed only in the 1st effect and withdrawn continuously by positive action pump. The 2nd and 3rd effects may be used for low-temp products. Split process results in maximum operating efficiencies and production of condensed skim-milk suited for both high and low-heat powder. *J. R. Brunner, Prof., Food Science, Michigan State U., E. Lansing.*

Disposable Paper Pallet Is Quickly Assembled

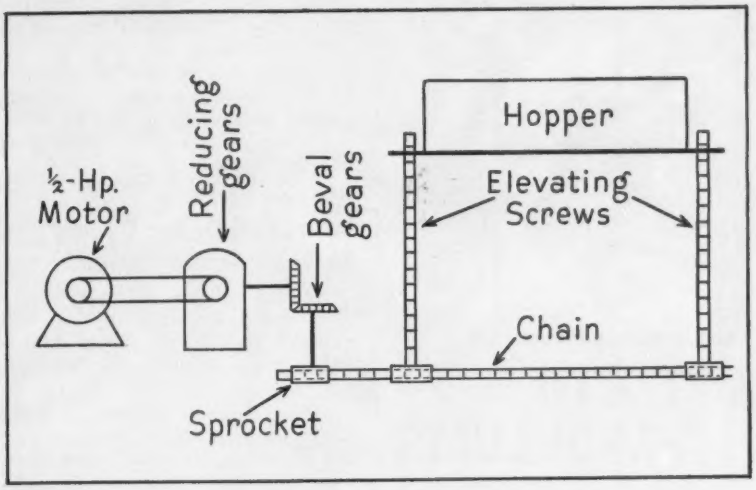
A new, lightweight, disposable pallet for filled bags shipped by truck has been successfully tested by Union Bag-Camp Corp. It can be set up by two men in user's plant in less than 1 min.

Pallet consists of a sheet of double-wall corrugated board to which is attached 2 half-cores made of laminated kraft paperboard so that cores can be centered to fit any type fork truck.

During test shipments, pallets were loaded with 18-36 filled bags. Loading patterns vary according to size of bags. One system is to place 3 bags lengthwise over each core and extend them to edge of pallet. To prevent overhang, the 2 center bags are positioned first, then the 4 outer ones are laid in place, slightly overlapping the center ones.

Second layer of 6 bags is loaded at right angles to first, and 3rd layer is similar to the first. Each additional layer is reversed thus forming a very stable pattern.

When filled pallets are loaded aboard truck, the cores are placed parallel to width of truck bed. This facilitates unloading from sides of truck. Sixteen pallets are placed on the truck—2 rows of 8 each—with a gap of 4-6 in. between rows.



Filler Change-Over Eased With Motor-Driven Unit

We were in need of an easier and more efficient way to elevate the hopper on our straight-line, piston-type filler when switching from one size jar to another. Each time we changed sizes (about a half dozen times a day), hopper had to be manually moved by a pipe and ratchet device linked to four vertical screw legs through gear-sprocket-chain assembly.

Simple solution was to install a ½-hp. motor-driven reducing gear (1-25 ratio). Reducer is linked to bevel gears that drive vertical shaft on end of which is a sprocket. Latter is linked by a chain to the four vertical screw legs that raise or lower hopper.—(Jerry Schultz, Production Manager, Wm. Barnes, Inc., Minneapolis.)

Paper Wipers Save Time; Make Plant Neater

Three difficulties with cloth wiping materials caused Gerber Products Co. to adopt sanitary paper wipers at its Rochester, N. Y. plant.

1. Lint from cloths was difficult to control in food processing areas.

2. Waste cloths could be seen dangling from employees' pockets or lying on machines where they caused a littered, untidy appearance.

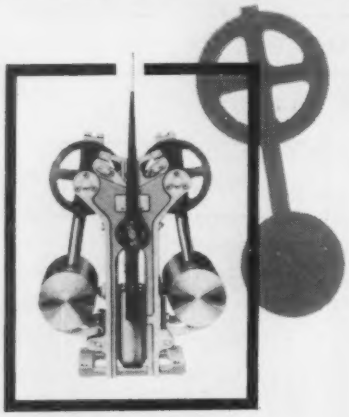
3. Inconsistent quality of fabrics made it difficult to develop efficient wiping skills for equipment maintenance.

Disposable paper wipers (Scott Paper Co.) were plant-tested and adopted. They are now available near filling machines (photo) and other processing equipment in the cook room for 3 major uses: (1) Cleaning up spills; (2) removing moisture from equipment, and (3) employees' personal cleanliness.

In maintenance department where lift trucks are repaired, dismantled parts rebuilt, and machinery overhauled, paper wipers remove oil, dirt, and grease accumulations. Their nubby surfaces help scoop up these substances, and their perforations produce tiny capillaries for high absorbency.

A significant time saving resulted from the change. Previously, employees had to walk to the central stores area for a handful of cloths. Now packages of paper wip-

HEAVYWEIGHTS!



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Practical Ideas

ers are distributed by fork-truck drivers. The result has been a reduction of lost production time to a bare minimum.

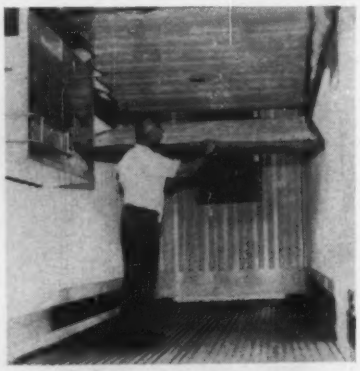
Gerber's has realized a $400-500 annual saving in wiper costs, improved housekeeping, and added a safety factor to its sanitation program.

Improved Dryer Design Solves Tough Problem

An agricultural chemical containing the sodium salt of an organic acid presented a real drying challenge to Dow Chemical Co.

Product was extremely heat sensitive and highly hygroscopic, yet required drying to less than 1% moisture content. Conventional procedures resulted in chemical decomposition.

Problem was solved through design changes effected by Dow engineers and those from Nichols Eng. & Research Corp. The new dryer easily accomplishes desired gentle dehydration and, what's more, does it at temperatures of 500-600 F. with corresponding high thermal efficiency.

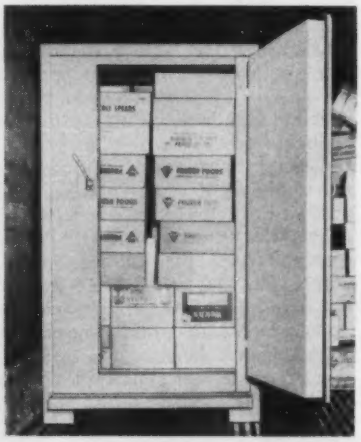


Multi-Temp Trailer

For efficient hauling of supermarket perishables, Red Owl Stores, Minneapolis, needed a trailer that could carry vegetables as well as frozen foods. This called for a two-compartment trailer with side doors and a special refrigeration system to keep both compartments at different temperatures.

Problem was solved jointly by Great Dane Trailers, Savannah, and Thermo King Corp., Minneapolis.

Trailer developed has a sliding bulkhead door between compartments. This feature enables varying the size of front or rear compartment depending on type of cargo. Door folds to the ceiling when not in use. Refrigeration unit provides sub-zero temperatures for frozen foods, as well as cooling of produce in warm weather and heating in winter.



Eases Hauling of Frozens

This upright shipper has solved many frozen-food hauling problems for Super Valu Stores, Minneapolis.

Box has a laminated wood exterior, 4 in. of Nyfoam insulation, and an aluminum liner. It holds up to 1,500 lb. of frozen foods and maintains zero temperature up to 12 hr. with only 6-7 lb. of dry ice. Unit was supplied by Tonka Fixtures, 10906 Wayzata Blvd., Minneapolis.

Shipper allows mixed loads to be handled easily in the same trailer. Unit can be moved by hand jack or lift truck, and is taken right into freezer room to fill orders, which eliminates any double handling. Filled shipper goes directly to outgoing truck.

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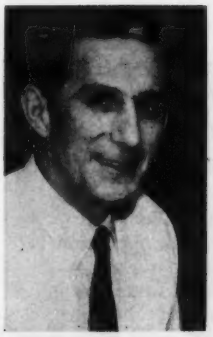
Mr. Leonard Katzman unloads cherries from the USS Cyclone Conveyor Belt.



"A USS Cyclone Conveyor Belt helped us triple production."

"We recently increased our production of bottled maraschino cherries on several trial runs by installing some new processing machinery and a USS Cyclone Belt," says Mr. Fred Weinspach, plant manager of Vita Food Products, Inc., New York City. "The new equipment includes an automatic packer, a capping machine, a pasteurizer fed by the conveyor belt and an automatic labeller.

"We used a USS Cyclone Belt in our old operation, too, but the new one is almost twice as wide. We're glad to use Cyclone again, because after seven years of steady use in a submersion-type pasteurizer, the old Cyclone belt showed no depreciable wear and appeared as good as when originally installed. We had no trouble with it—no breaking or oxidation—and we don't expect any with this one."

The new conveyor belt made of USS Stainless Steel will be able to increase Vita Food Products' production without adding much more personnel. A USS Cyclone Conveyor Belt system would work for *your* profit, too. Send the coupon for information on Cyclone's wide variety of efficient, work-saving conveyor belts.

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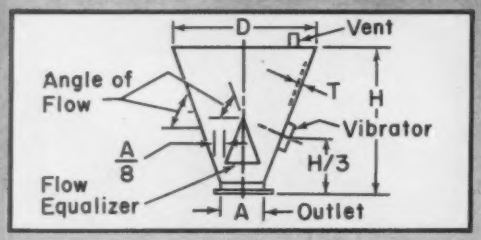
TABLE I—Hopper Design Details, Vibrator Selection Data



Product Flow Cu. Ft./Min.	Vent Pipe Size, in.
0.1	1/2
0.4	1
1.0	1-1/2
1.8	2
4.0	3

Product	Angle Of Flow (deg.)
Coffee beans	27
Instant coffee	70
Flour	32
Sugar	35
Wheat	33

Vibrator Size For Hoppers

Hopper Size			Electric		Hydraulic or Air		Mechanical		Air Cylinder		
D, Ft.	H, Ft.	T, in.	Watts	VPM	CFM @ 80 Psi	VPM	Hp.	VPM	Dia. in.	Stroke, in.	VPM
1	1	1/32	15	7200	1/2	7000	1/40	9-20	1	2	75-500
2	1-1/4	1/32	25	7200	1	7000	1/40	9-20	1	2	75-500
3	2-1/3	1/16	45	3600	1-1/2	5300	1/20	15-20	1-1/2	3	5-75
4	3	1/8	75	3600	2	4900	1/12	15-30	1-1/2	3	5-75
5	3-3/4	3/16	150	3600	2-1/2	4700	1/4	25-50	2	4	5-75
6	4-3/4	1/4	275	3600	3	4000	1/2	30-60	2	4	5-75

PROPERLY DESIGNED storage hoppers seldom require vibrators. But when they do, this table provides an important guide. For rectangular hoppers, two vibrators on opposite slopes should be used. Their sizes should be slightly smaller than those of single units for a corresponding conical hopper.

How Vibrators Aid Processing

Properly selected and installed, they keep hygroscopic products moving to eliminate production and packaging bottlenecks. Detailed here is latest information on vibrator types and characteristics

SPRAY DRYERS, cyclones, and storage hoppers can be costly bottlenecks in food processing and packaging.

But when properly designed and, where necessary, equipped with vibrators, these units are relatively trouble-free.

The big problem is to select the vibrator that best accommodates the many variables met in everyday application, and still get the most economical setup.

Where They Are Used

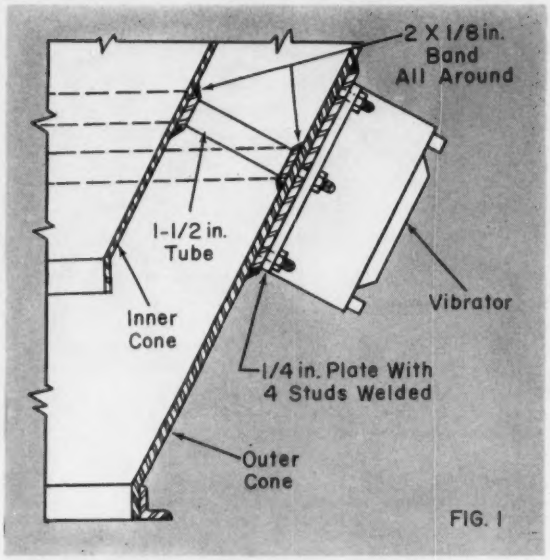
In the food industry, vibrators act primarily as materials-handling adjuncts. They find greatest use in the following types of equipment and operating conditions.

1. Spray dryers and cyclones.
   A. Usually 24 hr./day operation.
   B. Small amount of material in such equipment except in case of malfunctioning.
   C. Shells are of light-gage stainless steel.
2. Storage hoppers.
   A. Usually kept full.
   B. Outflow varies from intermittent to continuous.
   C. Shells of heavy-gage black iron.
3. Packaging hoppers.
   A. Continuous operation 8-16 hr./day.
   B. Generally much smaller than storage hoppers.
   C. Shells of light-gage stainless steel.
   D. Outflow is continuous and hoppers are always full.

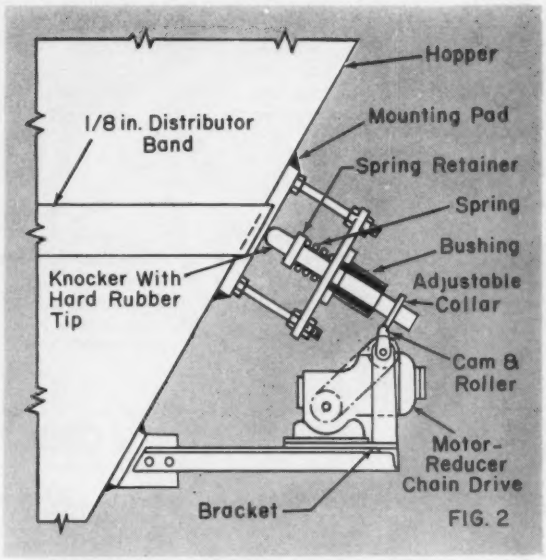
In spray dryers, the problem is to keep a small amount of product on the move in a relatively large vessel.

Best way to do this is with low frequency vibrators that have just enough force to keep the metal oscillating. Exact power requirements are best determined by experience. For this reason, you

FREDERICK MARICH
Vice Chairman, ASME Materials Handling Div. Formerly Engineering Supervisor, General Foods Corp.



ELECTRIC VIBRATOR is simple and economical for certain intermittent operations. Here, it is applied to both inner and outer cones of spray dryer.



MECHANICAL VIBRATOR of cam-eccentric type was custom-designed for high amplitude, low frequency, and easy replacement of parts.

should use a unit whose power and frequency can be varied independently.

Application of vibrators to cyclones is somewhat similar to the above. Only difference is that cyclones handle much less product than spray dryers, therefore require vibrators that are correspondingly smaller and less costly. For such installations, either hydraulic, air, or electric types can be used to operate a few times an hour, even though process is continuous.

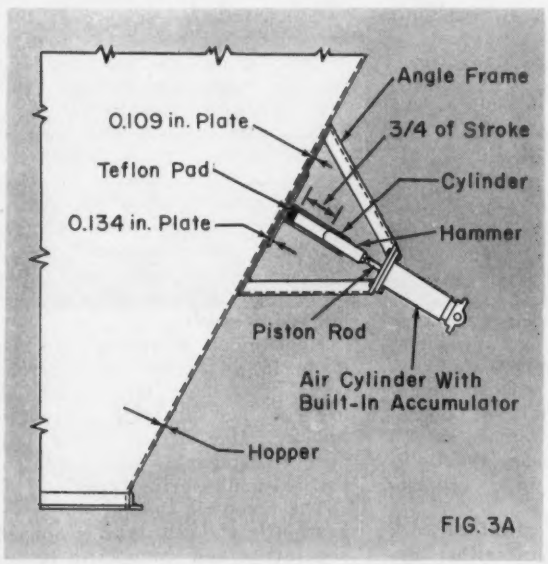
For large cyclones with heavy product movement, it may be necessary to consider custom-designed units similar to those used for a spray dryer. Such units are preferable to standard off-the-shelf vibrators.

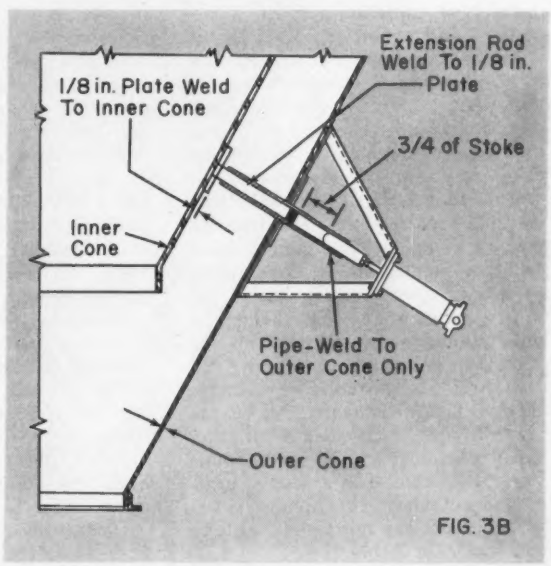
Storage hoppers present many different problems depending on the materials stored in them. Before vibrators are applied to them a check should be made to determine if improvements in hopper design can eliminate their need. Here's an easy check list (also see Table I):

A. Inclination of wall (or valley angle in case of rectangular hoppers) must be greater than angle of product flow.

B. Hopper must have sufficiently large vent.

C. Flow equalizer and anti-bridging cones should be installed.




Extension Rod Weld To 1/8 in. Plate
1/8 in. Plate Weld To Inner Cone
3/4 of Stoke
Inner Cone
Pipe-Weld To Outer Cone Only
Outer Cone
FIG. 3B

AIR-CYLINDER UNIT with independent controls for impact load and frequency. Left: Applied to outer cone of spray dryer. Right: Same unit applied to inner cone.

TABLE II—Pointers That Simplify Vibrator Selection

CHARACTERISTICS	ELECTRIC (Pulsating Magnetic)	MECHANICAL (Eccentric Cam)	HYDRAULIC OR AIR		
			Pulsating	Rotary	Air Cylinder
FREQUENCY (Vpm)	3,600 or 7,200	0–1,800	300–2,400	1,000–90,000	30–100
POWER (Hp. or psi.)	1/40–40 hp.	1/20–1 hp.	40–90 psi	10–120 psi	40–80 psi
APPLICATION	Storage hoppers, cyclones, conveyor chutes	Spray dryers, cyclones, storage hoppers, packaging hoppers	Storage hoppers, cyclones		Spray dryers, cyclones, storage hoppers, packaging hoppers
MAINTENANCE	Low for intermittent operation	Routine lubrication required. Overhaul dependant on frequency rate	Requires constant attention for maximum efficiency		Leakage is minimized by low frequencies and heavy duty construction of air cylinder
ADVANTAGES	Most efficient for intermittent operation. Wide range of standard units available. Easy to install	Special designs furnish any output range. Low frequencies permit continuous operation with minimum power consumption	Flexibility in output range does not require precise sizing of units. Suitable for explosive atmospheres. Rotary type is very quiet		Most efficient for 24 hr./day operations
LIMITATIONS	Frequencies are limited. Units must be sized precisely	High first cost, because more custom designing required	Noisy, and leakage is difficult to prevent	Consumes more power than comparable pulsating type	Moderately high cost, but requires less custom designing than mechanical type

D. In large installations, for such materials as sugar, it is advantageous to install air circulating systems to prevent moisture condensation and consequent product hardening.

Where vibrators are required, their selection depends on characteristics of the various types.

For highly efficient intermittent operation, an electric unit is preferable.

Where quietness is a factor, the rotary air type is advantageous.

For extreme cases, the air cylinder type could be used in place of the hand poker.

Packaging hoppers are similar to storage units, except that they generally operate continuously, one or two shifts per day. Here, too, every precaution should be taken to avoid using vibrators.

But when it has been established that a vibrator is essential, its selection will depend upon whether operation is continuous or intermittent.

For continuous operation, a custom-designed mechanical or air-cylinder vibrator which fits the particular needs is advantageous. Since most packaging operations involve a number of similar units, first cost will be correspondingly less than for a single unit.

Characteristics of various types of vibrators are not too difficult to analyze (see Table II).

Electric type vibrators are simple to operate and economical for certain intermittent operations that are not particularly severe (Fig. 1). Electric power is used directly, which boosts efficiency. The pulsating magnetic type with mechanical springs for recoil produces either 3,600 or 7,200 vibrations/min.

Such units can be equipped with rectifiers and controllers where variable power output is required. Where this is not needed, highest efficiency can be obtained at nearly full power, because limiting power with a controller cuts amplitude of vibration without cutting frequency. Thus, a smaller unit may be preferable for a particular operation.

If a wide range of operating power is needed, air or hydraulic units should be considered. Remember, too, that the life cycle of any high-frequency vibrator using mechanical springs will likely be limited by the number of deflections the spring can endure. If operation is continuous, life cycle will be short.

Nevertheless, the magnetic type is widely used in packaging machinery, storage hoppers, and conveyor chutes. It is most advantageous for intermittent operations, preferably not more than 8 hr./day. Greater usage results in high maintenance and replacement costs.

Hydraulic or air vibrators work just as effectively off either hydraulic or air pressure. In food plants, compressed air is more prevalent than hydraulic pressure, and usually a large central supply is available. But where a greater supply is needed, it may be more advantageous to consider small local compressors, than to install additional ones in the central system.

Two distinct types of vibrators are available—pulsating and rotary-ball types. The pulsator is more efficient, producing vibrating force by abrupt pulsation of pressure. The other is quieter, but requires more energy to generate centrifugal force in rotating ball.

Both types are less efficient than electric ones, because they convert electric energy to pressure and then to mechanical motion. But they are advantageous in applications with explosive atmospheres where electric types would be hazardous. Also, a wide range of standard units are available, which can be varied by merely throttling the pressure. This minimizes the need for sizing units precisely according to output requirements.

Mechanical vibrators can be made in a number of different ways. Standard types such as are used on vibrating conveyors are available. They cover two general categories—cam-eccentric and harmonic-spring types.

The eccentric that produces vibration in the cam type is housed separately and connected to an ordinary motor by means of flexible coupling, belt, or chain drive.

(Continued Page 67)

CIRCLE 65 ON READER SERVICE CARD ➔

If the proof is in the testing, here's a young fellow who's obviously had a point proven to him. Chances are that Hercules® CMC—Cellulose Gum—has been used in the formulation because Cellulose Gum is becoming increasingly popular as a stabilizer for both pie fillings and meringues.

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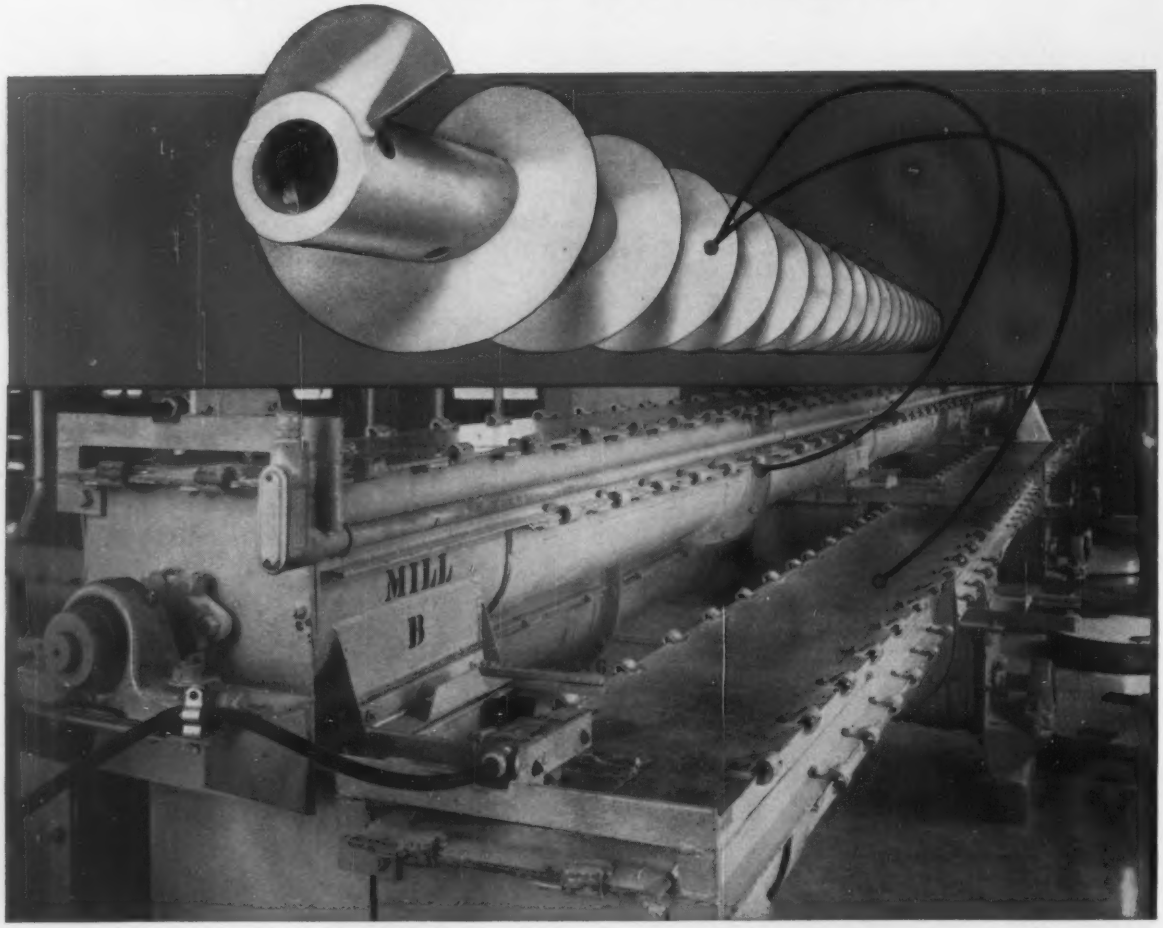

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The harmonic-spring type uses a standard electric motor and drive mechanism coupled to mechanical springs to create the vibration. This type is used primarily for long vibrating conveyors and is not generally available as a separate unit for spray dryers and hoppers.

Specially Designed Units

One version of the cam-eccentric type, developed by the author is shown in Fig. 2. It was designed for a special application for which neither electric nor air vibrator would do. It simulates manual hammer blows at low frequency for continuous operation. Maintenance and repairs are made at long intervals that coincide with plant shutdown.

Unit is designed for easy access and replacement of parts. The spring, which is standard commercial quality, is the only part with limited life, and it is easily replaced. It can also be changed to increase or decrease intensity of hammer blow.

Speed of motor-reducer can also be made variable to change the frequency. This gives a much greater flexibility than can be had with electric or air vibrators. First cost, however, is also greater. Maintenance is reasonably trouble-free if heavy-duty components are used and wearing surfaces of roller and collar are hardened. Such custom-designed units are particularly advantageous in plants that operate continuously with little or no attention.

For plants that require 24 hr./-day operation throughout the year, power consumption is an important factor that can in itself justify custom-designed vibrators particularly fitted to required conditions. The new type air-cylinder vibrator shown in Fig. 3 was developed for spray dryers processing instant coffee.

On large spray dryers—over 20-ft. dia.—six of these units are used to vibrate inner and outer cones as shown in Figs. 1 and 3. With heavy duty commercial air cylinders they require less maintenance than any other vibrator used for the same job. They also use less air because frequency is controlled by an electric timer (Fig. 4).

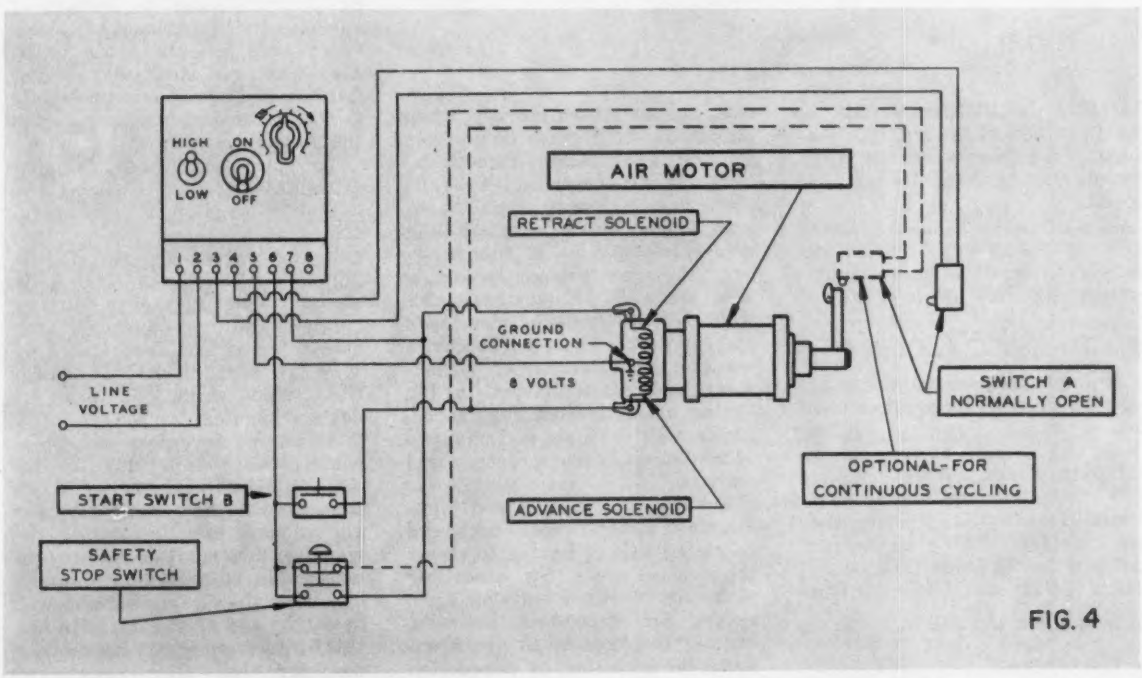
An air valve governs intensity of each stroke, so vibrator uses only the power actually needed. Additional adjustment of stroke intensity can be made with lock screw on piston rod. Generally, piston travels ¾ of stroke before striking surface to be vibrated. With independent control of both force and frequency, this unit offers ideal flexibility. First cost compares favorably with that of a comparable mechanical unit. Operating cost is less than for other air vibrators of comparable size.

Static Grounding

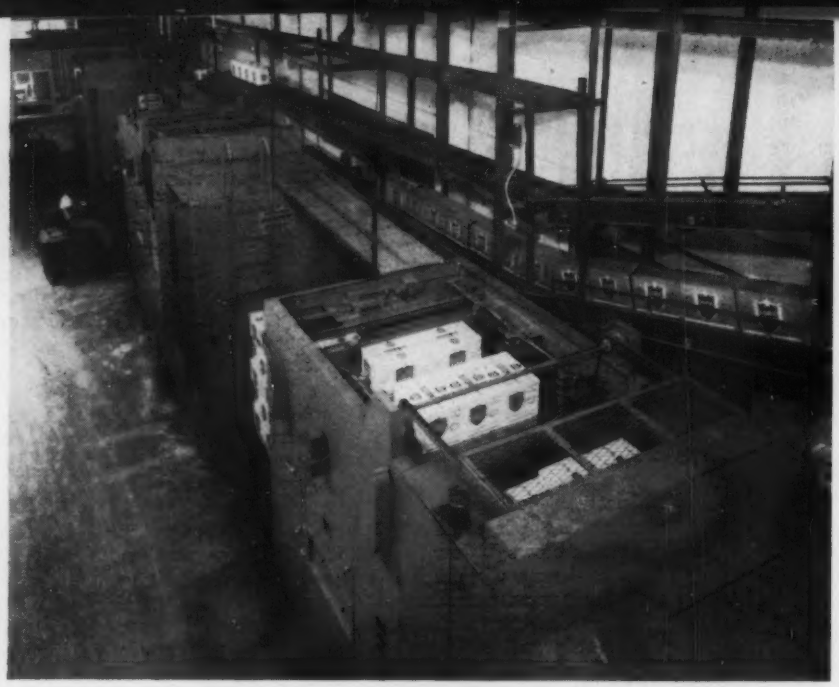
Experience has shown that in high-frequency vibration of spray dryers and hoppers, elimination of static electricity is an important precaution. The vibratory motion attracts positively charged particles to the negatively charged hopper and packs the particles tightly as they accumulate.

Since most products in a spray dryer are hygroscopic, their absorption of moisture from the steam-laden air causes a heavy crust to form on inside of hopper. This cancels the action of the vibrator and creates an ornery cleaning job that requires plant shutdown.

It is quite simple, however, to eliminate static. Strands of copper wire are soldered, at not more than 3-ft. intervals, on circumference of hopper and grounded to nearest steel girder. It is not sufficient that such hoppers are already grounded at their supports—static electricity must be grounded as near its source as possible. (End)



ELECTRIC TIMER used to control air-cylinder unit cuts air usage and operating cost.



FULL CASES are conveyed to three palletizers located between truck dock (left background) and adjoining rail dock. Palletizers can be fed from any of the overhead can and bottle conveyor lines.

PART II—Fillers to Carriers

Latest Handlers Automate Flow

Electronic controls, conveyors, palletizers, fork trucks speed movement of filled cases from bottle shops to delivery platform

RECENT MODERNIZATION of the Lone Star Brewery, San Antonio, Tex., has practically eliminated manual handling of case goods.

How this was accomplished with incoming empty bottles and cans was pinpointed in a previous article. (FE Sept. '60, p. 68).

'Run-Through' Cuts Costs

Storage areas are maintained in case warehouses to equalize feeding of empties into the bottling lines, and loading of fulls on the shipping docks. When empties flow from inbound carriers directly to bottle-shop soakers, they are considered to be on a "run-through" basis since they do not touch the storage areas for empties. On the return journey, when output of filled cases flows from the bottleshop packers directly into outbound carriers, the fulls are also on a "run-through" basis.

In setting up the case-handling modernization plan at this brewery, the run-through principle was made a primary objective wherever it could be developed and applied. This called for a considerable amount of adjustment and reconciliation in the timing of production runs to coincide with the time and quantity of loading in boxcars, reefers, and trailers.

Keeping bottle and can lines running directly into outbound carriers, without having to resort to storage areas for absorbing over-runs or supplying shortages, except for impending holidays, became the keynote in synchronizing the planning of production and shipments.

Distributors now send in their orders for an entire week a few days in advance of that week. These orders are immediately summarized for each shipping day by products, and by individual carload and truckload. Using these requirements as a basis, plus whatever stock may be on hand, a daily production schedule is set up for each working day in the following week.

To carry out these shipping schedules and avoid flooring the output, a dispatch office is maintained at a central point in the shipping warehouse, next to the palletizing machine. The daily shipping schedule broken down by carriers, and by products for each carrier, is revised each morning to make adjustments for deviations made from the previous day's schedule.

A running inventory is kept of each product from day to day which tells the dispatcher at all times exactly how many cases of any product are on hand in the morning, how many are being produced and shipped on that day, and what the closing balance will be at the end of the day. He has this information at his finger tips for the entire variety of products throughout each of the

A. T. GAUDREAU
Gaudreau Associates, Weston, Conn.

two shifts that the plant is operating.

Palletizers the Key

Now, with respect to handling of filled bottles and cans, cases are counted mechanically before leaving the packers and entering the shipping department conveying system. Here, conveyors with automatic traffic controls, photoelectric cells, solenoid-controlled pressure stops, and hinged belts send them to one of three palletizers.

These machines receive a stream of individual cases of one product directly from production conveyor runs. They have electronic panels connected to photo cells, limit switches, and timing equipment, which govern the entire stacking operation in accordance with a pre-set pattern.

All three palletizers can be fed from any can or bottle line. When the same product, such as 12-oz. export bottles, arrives on two or more production lines, runs are merged before reaching conveyors feeding palletizers.

Filled cases enter top side of palletizer where electronically controlled conveyors and mechanical components make up each tier of the load. Empty pallets are fed automatically as needed from a stacked supply in a special magazine at rear of machine.

The strategic position occupied by palletizers in the plantwide flow of filled cases is shown on the accompanying flow chart. They were installed on a newly-constructed floor connecting two bottle shops.

Facing the yard roadway is the new elevated truck shipping dock built to accommodate pallet loads coming from the three palletizers. The rail dock is at the other end of the centrally located battery of palletizers. By this arrangement, pallet loads may move either towards the rail dock at one end of the bottle shops or towards the long truck dock at the other end.

Conveyor lines carry streams of filled cases from bottle shops on both sides of the palletizing room. Conveyor flows, which start near the truck dock, all swing up towards the rail dock where they begin to merge as they approach the palletizers.

Pallet loads not destined for immediate shipment are fork-trucked from palletizer discharge conveyors to pre-selected storage areas on same floor level, namely, on first floor of case warehouse near one of the bottleshops. For storage of filled cases on 2nd floor, pallet loads are transported by fork truck from palletizers to one of two automatic vertical lifts. When loads reach the 2nd floor, they are picked up and stored by fork truck. Ceiling height on both floors in the case warehouse permits stacking the loads two high.

In loading of highway trailers, consideration must be given to range of sizes and floor conditions existing in distributors' trailers. Another prime factor is type of facilities available at distributors' warehouses for handling palletized case loads.

For road trailers and city route trucks, a pallet load six cases high, eight cases per layer, was found most practical for 24, 12-oz. bottles. Overall height of such a load, including pallet, is 64-in. Its weight, including pallet, is 2,038 lb.

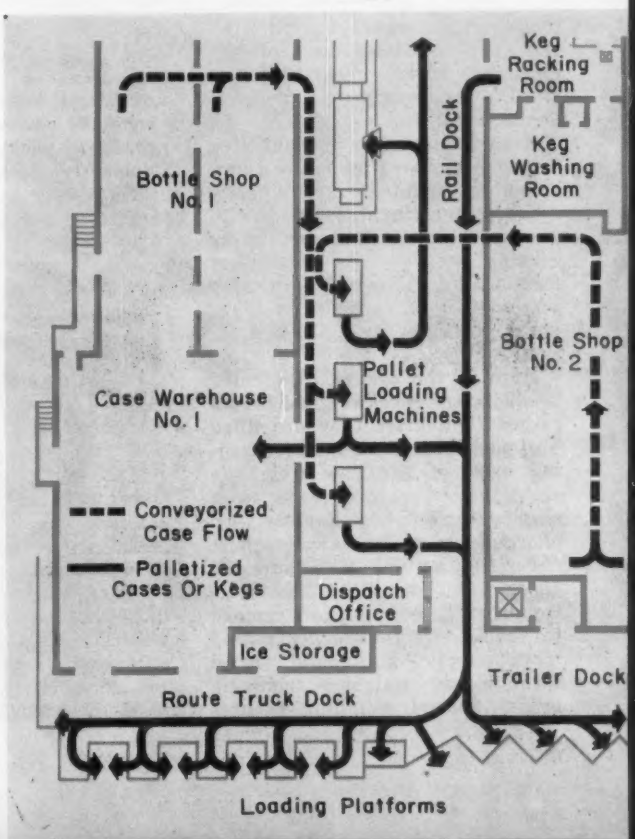
For rail cars, the six-layer pallet load would cause a 25% shortage in minimum carload weight. To attain allowable weight, pallets should be stacked eight cases high. A simple adjustment on the palletizing machine enables turning out 6-, 7-, or 8-layer loads as desired.

Pallet loads scheduled for immediate shipment by truck are picked up by fork truck and transported directly to outbound carriers. Palletized stock, including beer kegs taken out of storage, is also fork-trucked into boxcars, reefers, road trailers, and the sides of city route trucks.

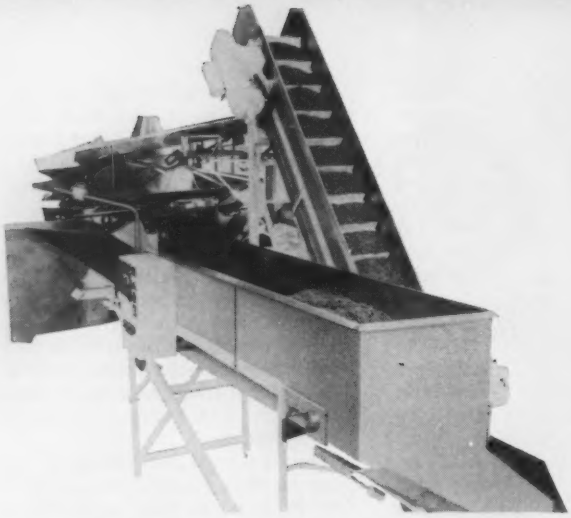
Each pallet load of export beer contains 48 cases and weighs slightly over 2,000 lb. It takes but 20 of these one-ton loads to fill a 40,000-lb. trailer, and less than 20 min. for fork trucks to perform the operation.

The 34 x 44-in. block-type pallet used in this installation permits two different stowing patterns for optimum loading on trailers. For vehicles having an inside clear width of 90 in. or over, loads are stowed 2-wide with the 44-in. dimension crosswise of the truck.

Trailers with an inside clear width of less than 90 in. are still in the majority, however, especially in older fleets. In these, loads are also stowed 2-wide, but only by alternating the 44-in. side with the 34-in. one in the two loads positioned abreast. In other words, the 44-in. dimension is placed crosswise for one load, and the 34-in. side crosswise for the load abreast of it, thus taking up only 78-in. of the internal width of the trailer. (End)



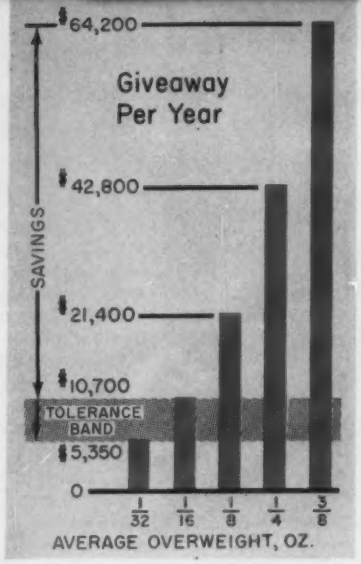
IN REVAMPED SETUP empties are trucked to vertical lift from trailers at dock. Fulls from two bottle shops converge on palletizing machines. Loads of fulls are trucked directly from palletizers to case warehouse (left), or to shipping docks at either end.



New Principle Weigher

HIGH-SPEED WEIGHER checkweighs product before, rather than after, filling into package. Result is 1/20-oz. accuracy at production rates to 90 per min.

WHAT YOU SAVE by cutting package overweight. Chart is based on 16-hr. production, 70 packages/min., no underweights, and 1c./oz. material cost.



Cuts Packaging Giveaway

Ingenious combination trimmer-checkweigher features 1/20-oz. accuracy on high-speed lines, handles free- and semi-free flowing items

ACCURATE WEIGHING may well be the toughest food-packaging problem to solve. Although the ideal solution is yet to be attained, the various approaches yield many worthwhile savings—less product giveaway, fewer wasted packages, and lower manpower requirements.

Coming closer by a giant step to whipping this problem is a new weighing machine. Its radically different approach, coupled with advanced design features, offers greater accuracy in scaling of free-flowing and semi-free flowing products into various packages (bags, cartons, or rigid containers).

Here is the difference: Scaled products are checkweighed before rather than after they are filled into packages. It's done by charging each of the new weigher's eight paired-scaling trays to a slight overweight. Each scaled charge is double checkweighed.

First action is to make sure the charge is "over," so the overweight will be vibrator-trimmed to precise weight during paired trays' merry - go - round travel through six weight - trimming areas. Second weighing assures that the charge is on-the-button before product is emptied into package.

Combination weigher and double checkweigher was developed by The Olofsson Corp., Lansing, Mich.—a machine-tool firm unfamiliar with food packaging, hence the reason for a fresh approach to package-line weighing. Compactly designed units have recently been installed in several large food plants, where they are maintaining high accuracy (1/20 oz.) at production rates to 90 packages per min.

Complete with product-supply unit, weigher handles materials in weight ranges of 0 to 20 oz. in 1/32-oz. increments, and 0 to 40 oz. in 1/16-oz. increments. Scaling trays have capacities of 200 and 300 cu. in.

Unit weighs such products as elbow macaroni (90, 7-oz. charges per min. with ±.05-oz. accuracy), cereal flakes (80, 11-oz. charges with ±.06-oz. accuracy), potato flakes (60, 3½-oz. per min. with ±.05-oz. accuracy), caramels (60, 8-oz. charges per min. with 1-piece accuracy), sugar - coated cereal (80, 9-oz. charges per min. with ±.06-oz. accuracy), and potato chips (55, 1⅜-oz. charges per min. with ±.10-oz. accuracy).

To operate at higher speeds with greater accuracy—and repeatedly—new weigher also . . .

. . . Adds time to its scaling operations. Additional weighing time (eight times that of most conventional weighers) comes from unit's eight paired scales that are glove-fitted in a merry-go-round under a single variable feedback-controlled supply vibrator. Signals from weight-trimming operations actuate a servomotor which, in turn, varies slope of vibrator tray to alter product-feed rate to paired scales.

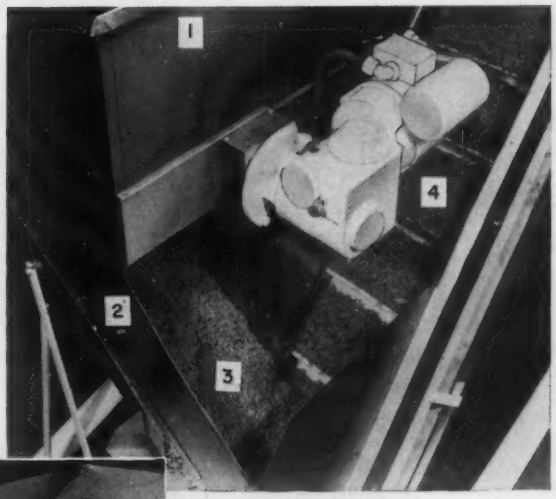
. . . Uniformly controls product flow. Uniform flow is achieved by inclined feed elevator with variable feedback controlled speed. It levels out variations in packed or fluffy materials, and maintains an even weight on main supply vibrator. Latter also levels out minor variations in product flow.

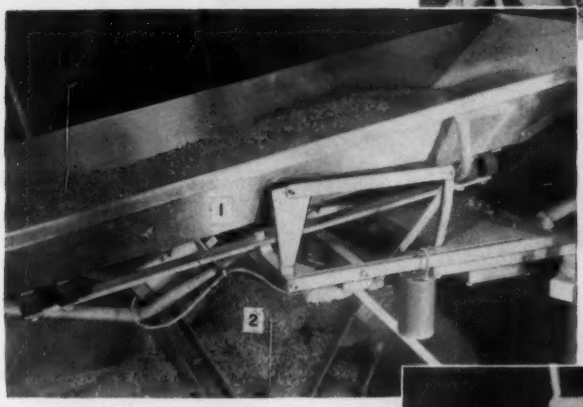
. . . Uses light feed rates. A 3½-oz. charge, for example, is trimmed to desired 3-oz. weight in 5 seconds. This ½-oz. represents a feed rate of 1/10-oz. per sec.

. . . "Knows" the weight each of its scales holds, thus, doesn't an-

Component Closeups

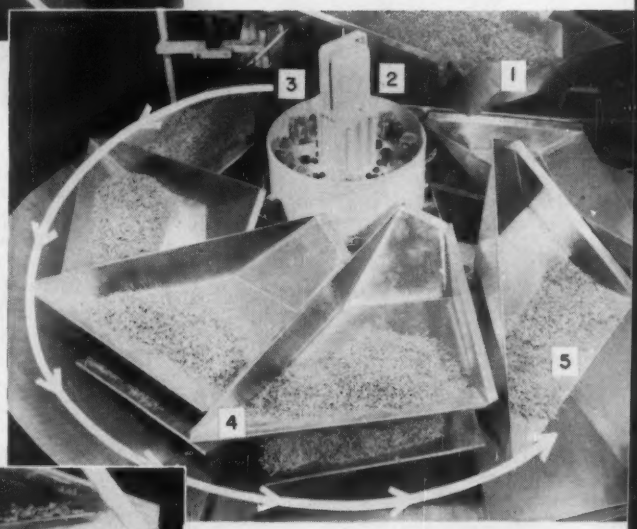
FEEDING. Stainless-steel supply bin (1), with oil-resistant conveyor belt, intermittently advances material on demand at 6-9 fpm. Feed rate is automatically controlled by weight of product discharged into weight chute (2). Material gently slides into elevator hopper (3), from which inclined belt (4) transfers it to vibrator-weighed trough (next photo). Belt speed is also automatically controlled by weight of product on vibrating trough.

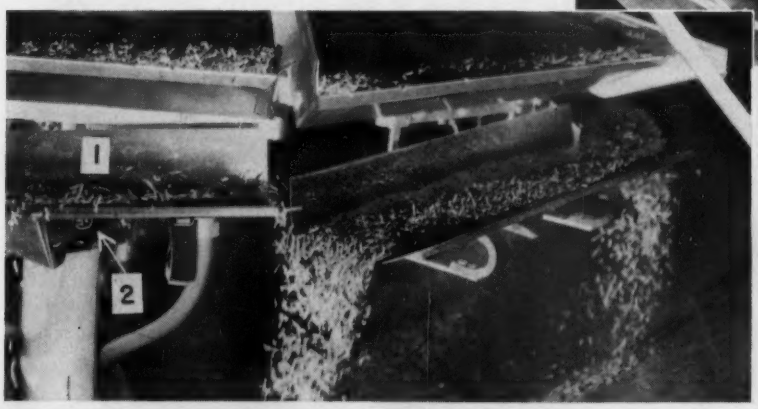




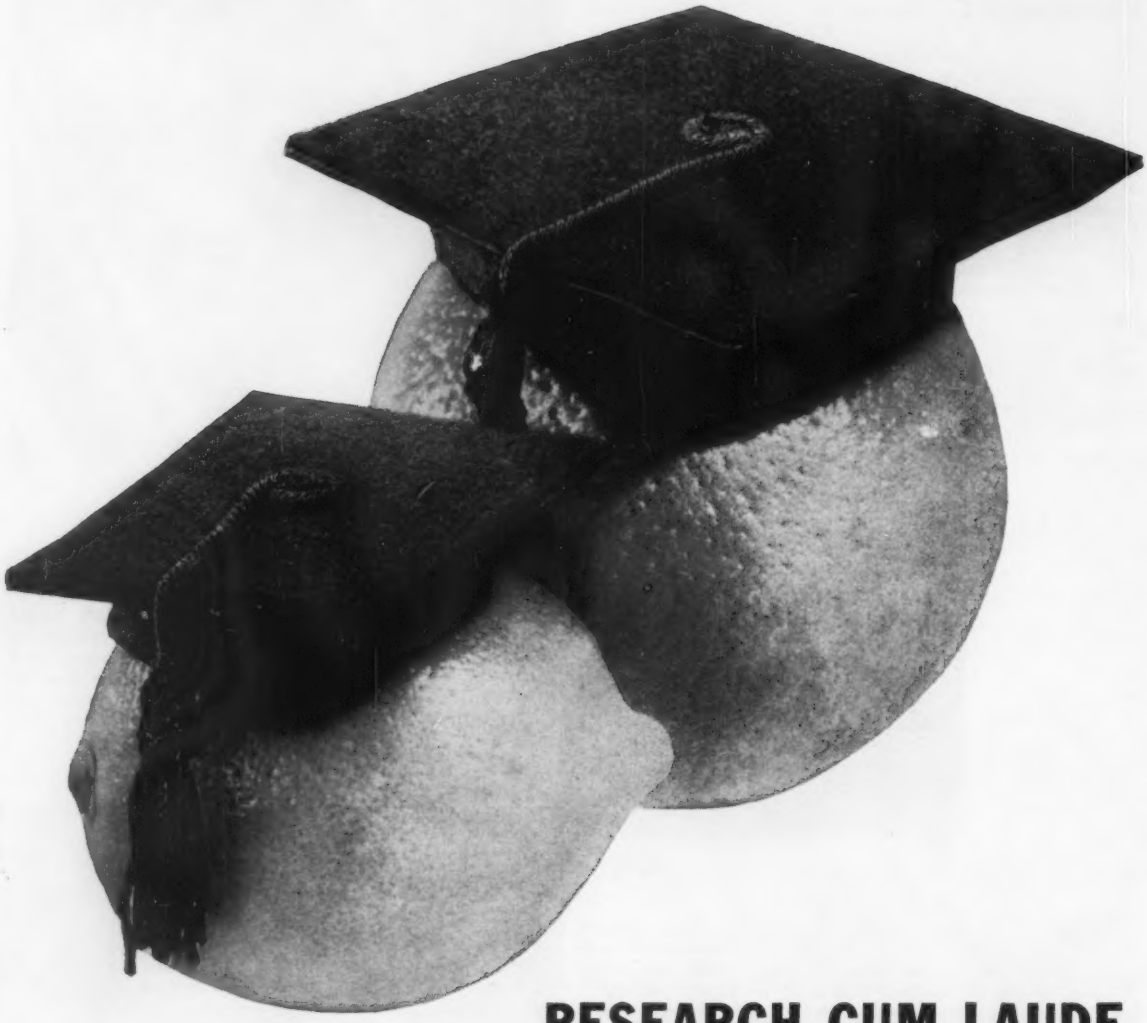
TROUGH WEIGHING. Vibrating trough (1) is mounted over eight pairs of rotating scaling trays (2). Vibrated by a motor-driven eccentric weight, trough delivers slightly overweight charges for subsequent trimming. Trough feedback control adjusts product flow according to signals from subsequent trimming operation.

TRAY WEIGHING. Each pair of trays is mounted on a common scale. Product flow (1) divides into two streams with 90% baffled into upper trays, 10% into lower trim trays. As trays rotate (2), each charge is checkweighed and memory unit records underweights (rare) for rejection. Overweight charges close electrical contacts (3) to actuate trim trays' vibrators as trays pass through six areas for final trimming. At proper weight, scale rises to open contacts and stop vibrator motor. Charge is again checkweighed (4) and product is discharged (5) from both trays simultaneously by intermittent gear drive. Latter then locks into position so trays may receive another charge and repeat the cycle.





TRIMMING TO FINAL WEIGHT. Trim trays (1) are vibrated by eccentric weights shaft-mounted to enclosed motors (2), which stop when weigher signals final weight.



RESEARCH CUM LAUDE AT YOUR SERVICE!

You can profit from Sunkist's citrus research—pioneering work that has been awarded 118 individual U.S. food processing patents.

It's at your service to help you convert "good" products into *superior* ones...cure production headaches...develop new products.

Sunkist research has already created over 400 products for industry out of California lemons and oranges—and discovered new uses for citrus in everything from pharmaceuticals to shrimp freezing.

Exchange

Sunkist technical experts will be glad to work *with* you—in your own plant—or *for* you—in their own citrus research laboratory. Write, and a Sunkist man will call on you.

Sunkist Growers

PRODUCTS SALES DEPARTMENT

CAN LEMON JUICE DO A JOB FOR YOU?

If you're a food processor... fresh, frozen or canned...fruits and vegetables...fish or fowl... lemon juice can do *at least* one thing for you:

- It can prevent or retard off-flavor tendencies...
- Maintain and even enhance natural food flavor—keep food fresh-tasting longer...
- Prevent oxidation, preserve color, texture and flavor during and after processing...
- Adjust acidity in low-acid foods–retard enzyme action...
- Replace salt in low-sodium diet foods...

And that's only a beginning. The list of jobs lemon juice can do is an extensive one.

If you're not using it...you may be letting the competition get a lead on you. Don't market a product that's merely "as good as" the rest. Exchange Brand Concentrated Lemon Juice—made by Sunkist—can often make it superior for only a penny or two—and add a selling ingredient of distinction to your label.

Why not let your Sunkist man talk it over with you?

The address: Sunkist Growers, Products Sales Dept., 720 E. Sunkist St., Ontario, Calif.

ticipate additional product fall after scale registers "weight." This anticipation (as in conventional weighers) may or may not be fulfilled. Time interval for such weighers' interruption signal to stop product flow results in more or less material falling, creating costly over- or under-weights.

. . . Employs four ball-bearing pivots for each of the eight paired scales to get the sensitivity of knife-edge scales and the ruggedness of cantilever spring-supported types. High frequency vibrations applied to ball-bearing pivots cancel out most of the friction torque. Extremely low breakaway torque is obtained at low speeds (near 0 rpm.).

Comparing Time Cycles

First, take a conventional 6-head scale handling 72 packages (12-oz.) per min., each head scaling a 12-oz. charge every 5 sec. If a second is allowed for a head to discharge and another second for it to wait for a slow head to finish, then only three seconds are left for feeding the 12-oz. charge. This amounts to a 4-oz.-per-sec. feed rate.

Suppose, now, that there is a 5-in. drop from vibrator feed to scale, so that material is suspended for 1/6 sec. This amounts to ⅔ oz. of unweighed material between feeder and scale. To target 12-oz. would require triggering a conventional scale at 11⅓ oz. and anticipating the fall of another ⅔ oz.

Furthermore, different products vary in their densities and flow rates. To be conservative, let's suppose there will be a 20% change in density. Thus, 20% of ⅔ oz. is more than 0.13 oz.—the amount package would be short-weight.

Now let's consider the new trim-off weigher pre-filling 12½ oz. of material into each paired scale. At speed of 72 charges per min., about 5 sec. remain to trim off the excess ½ oz., which is equivalent to a 1/10-oz.-per-sec. feed rate. The scales, however, actually weigh material they contain, which eliminates weight inaccuracies due to product suspension.

Finally, assume the entire 1/6 sec. of product flow, not just 20% of it, is not under control. Dividing 1/10 oz. by 6 gives less than 0.02 oz., which is insignificant compared to the 0.15 oz. cited for the conventional weigher.

(FE Staff)

Ice Cream Operation Improved by Special Plate-Type Hardener

"WORKING OUT beautifully" is the pioneer plate-type hardening machine designed for ice cream.

So declares Bob Spencer, production superintendent of Oak Farm Dairies, Dallas, Tex., where the unit is completing its first year of operation.

Similar to machines used for fast-freezing foods, the new equipment was supplied by Amerio Contact Plate Freezers, Inc. (Cliffside, N. J.). It handles square half-gallons and square pints.

► **Better quality through quick hardening is particularly cited by Wallace Smith, Oak Farms' superintendent of ice cream manufacturing.**

► **Further benefit is reduction of inventory, since the company can either ship the product immediately after it comes from the hardener, or in less than 12 hr. when it's held for additional chilling from 5 deg. F. center hardness down to 0 deg. F.**

Previously, the product had to be held for 48 hr. to attain zero core hardness.

Strategy of the Start

To install the equipment required considerable ingenuity, for it had to be put on the roof. Such a setup meant that the soft product had to be conveyed 185 ft. from the first-floor package-filling machine to the roof.

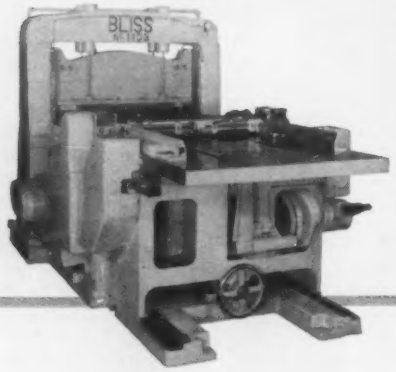
Argument was that this couldn't be done, because the rectangular packages would have to remain in one position and would have to turn a square corner.

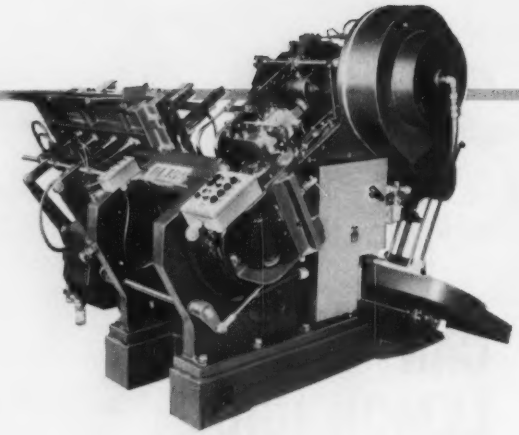
But Oak Farms engineers refused to be "thrown." They worked with Conveyor Specialty Co. to develop a high-speed conveyor on which packages would maintain the same position, even after negotiating corners.

The machine will process 450 gal./hr. with O F. centers. At Oak Farms, this rate would have required an unwieldy 1½-shift operation. So the company—preferring a single shift—decided upon output of 650-700 gal./hr. with 5 F centers.

However, when a second machine is installed, the plan is to operate at 900 gal./hr. with 0 F. centers.—(End)

New #1103 Automatic Scroll Shear offers highest production rate ever, shears both lithographed or plain sheets up to 36" square. There's no idle stroke...every stroke is a cutting stroke. First table retracts to permit regrinding of cutters with a conventional cutter grinder without taking them off.

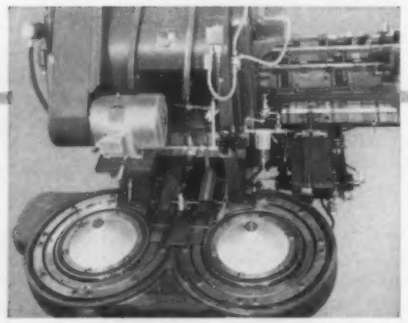




High speed #1831 Strip Feed Press blanks and forms can ends up to 404 diameter in double dies. Speeds range from 250 to 325 s.p.m. producing up to 600 or more ends a minute.

You can end CAN END production problems with these Bliss machines

(More Bliss end lines are in use than any other make)



Double end #20 Automatic Curler curls ends from 2" to 4¼" diameter; is designed for use with #1831 Strip Feed Press. Independently motor-driven, it does not rely on the press for its drive.

These machines incorporate many refinements in designs that have been thoroughly proved in production over the last four years. Write today for detailed information.

BLISS SINCE 1857

E. W. BLISS COMPANY · Canton, Ohio

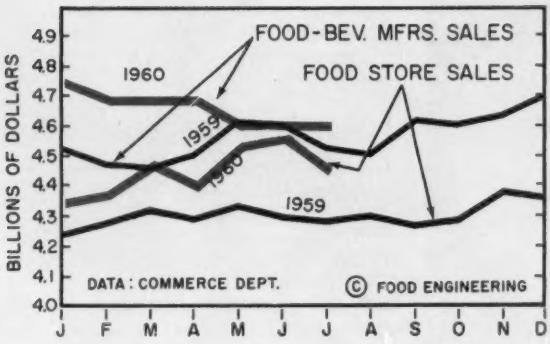
BLISS is more than a name—it's a guarantee

PRESSES • ROLLING MILLS • ROLLS • DIE SETS • CONTAINER MACHINERY • CONTRACT MFG.

CIRCLE 74 ON READER SERVICE CARD

Marketing Signals

Industry gains momentum . . . Why Coca-Cola looked south . . . Libby takes marketing cure



Industry Barometer: Buoyant Again

Signs point to an improved 3rd quarter performance by food-beverage industry. As the chart shows, manufacturers' sales in the April-June span fell behind the perky pace set in the Jan.-March quarter, when volume was up 5% over year-ago levels.

However, sales in July clung to the May rate, whereas last year they were still slipping. And a favorable omen is shown by the figures for August. For the first 8 mos. of '60, food store volume was up 2.9%, eat-and-drink sales up 3.8%. Also, FRB's output index for food and beverages climbed 3 points. Finally, personal income, despite a lackluster August, is still running 5.5% ahead of '59.

June-Sept. Nuptial Seeds No. 10

Proposed Minute Maid-Coca Cola merger weds two firms accustomed to moving at radically different paces. Conservative Coke (75-yr.) has lagged behind other soft drink firms in adopting new products and packages. Hustling MM (15-yr.) has chalked up many firsts in the citrus field—including grove raising, can-making, and processing methods.

However, the hook-up packs mutual benefits. Both firms rely heavily on food stores (which move more than 90% of all frozen orange concentrate, and 61% of soft drinks, that are sold). A long-time leader in international marketing, Coke should help MM's budding overseas program. And MM's experience with canned products gives Coke the savvy help it will need when it goes into tinned soft drinks in a big way.

Combined sales of the two outfits is $441.3 million —which would make Coca-Cola 10th ranking in the food-beverage field.

New Products: Pace Quickens . . .

Food-beverage industry is hiking its research dollar for new products and processes at a faster rate than overall industry. But it still lags in the share-of-sales directed to this area.

A mid-year poll by American Management Assn. indicates that food makers will hike R&D budgets 13.1% this year vs. 10.7% average for 402 industrial outfits. However, because of the necessity to pour more into merchandising efforts, food firms will devote only 1.7% of sales to R&D—far behind the 3.7% reported by all the firms.

AMA points out that many companies still waste their research dollars by poor planning. "Most companies aren't structurally organized" to take advantage of new items as fast as they're created, the association explains.

. . . And 'Image' Shifts

Accelerated rate of new product introduction may force companies to play down individual brand advertising in favor of a corporate merchandising "umbrella" that would cover entire product lines. So contends J. Gordon Lippincott, chairman of Lippincott & Margulies, food package designer.

He argues that rising communication costs make it uneconomical to spread the corporate image over increasing individual brands. The designer predicts this will force the adoption of more "integrated identification systems" and elimination of brand names which lack "substantial company equity."

Organizes For Growth

Libby, McNeill & Libby, whose profits have tumbled badly in the past 4 yr., reshuffled its internal set-up this month. Aim: Increased efficiency and economies through better marketing.

New operating system is based on 6 marketing divisions—eastern and western set-ups for canned goods, frozen foods, international, canned meat, and Canadian. Pres. Charles S. Bridges says "Each group will be better able to function with maximum efficiency in three areas: Marketing, profit planning, and cost reduction."

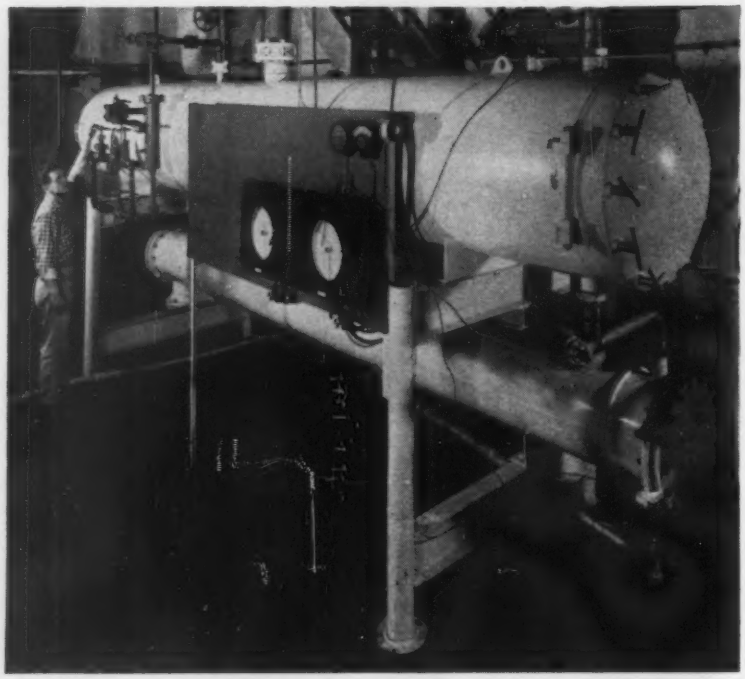
The chief exec points out that "each area looms large in the modern corporate set-up. But marketing assumes increasing importance, and it's here that Libby proposes to go all-out."

Donna Gives Juicers The Shakes

Florida's orange juice freezers, who look to bountiful supplies to keep prices competitive with rival products, are weighing Hurricane Donna's effects on future marketing. Preliminary estimates indicate that the big wind still left 90-92 million boxes of oranges available (91.5 million were processed last season). Big unknown factor, though, is the amount of damaged on-tree fruit.

Rising orange juice prices have helped rival soft

FLUIDICS* AT WORK



How to cool 100 gpm of grape juice 'round the clock, with just 80 minutes for cleaning

When plate coolers were used to chill grape juice at SENECA GRAPE JUICE CORP., Westfield, N.Y., plant, a lot of valuable production time went into manual cleaning.

Down time cut. But now, with the two Pfaudler® shell and tube heat exchangers shown here, SENECA cleans just four times during a 24-hour day, taking only twenty minutes per cleaning.

No manual labor is involved, since no disassembling is required. In fact, the only time these heat exchangers are opened is for visual inspection. All cleaning is accomplished with a heavy-duty detergent.

Sanitary design. And thorough cleaning is assured, since the hinged heads are highly polished, and all connections are of sanitary design.

160° drop. The grape juice comes from a Pfaudler pasteurizer at 190° F., and enters the lower unit where it is cooled by water to 80° F. After that it goes to the upper unit, which cools with ammonia to 30°-32°F., just right for cold storage.

Full line. Heat exchangers and pasteurizers are part of an extensive Pfaudler line designed to provide efficient processing with maximum sanitation and minimum need for maintenance. You also can obtain fillers, storage tanks, centrifuges, dryer-blenders, and evaporators.

More facts. We'd be happy to provide full details on any or all of these items. Please address your inquiries to our Pfaudler Division, Dept. FE-100, Rochester 3, N. Y.

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

PFAUDLER PERMUTIT INC.

Specialists in FLUIDICS...the science of fluid processes

drinks and synthetics (like Tang) cut into sales. Also, freezers have been unable to convert more than 30% of nation's families into steady users of their product (which now faces competition from some 132 rival thirst-quenchers).

Zero Code Advances

Development of a handling code for frozen foods is proceeding on schedule, Chairman H. C. Diehl reported to the Frozen Foods All-Industry Coordinating Committee last month. He said:

1) Some 50 state groups representing all-industry segments should be functioning by Jan., '61. 2) Draft of voluntary operating practices has been prepared in cooperation with USDA's Western Regional Lab. 3) Educational program is coming along fast—with a motion picture film prepared by American Trucking Associations for driver training, plus posters and training slides.

Boil-Bags Off Target?

Time-saving theme of boil-in-bag advertising isn't hitting home, DuPont survey of 20,000 households suggests. Less than 10% of those who tried the package noted they saved time, the company reports.

Poll also revealed that while 69% of respondents like the boil-bag idea, only 36% had purchased such an item.

Supplier predicts that sales of heatable pouches will jump from 1959's 69 million unit to 100 million this year, and 300 million by '65 (including 75 million institutional sacks).

BRIEFS

First major industry line of senior citizen foods will be launched by Heinz next year.

Long-planned cooperative public relations program by confectioners gets off the ground Nov. 1 with $250,000 budget behind it.

Dieting exercises will be illustrated on back panels of GF's Post grape-nuts cereals packages, tying in with product's high-protein, low-calorie advertising theme.

Combining advertising, price cuts, and special displays is more effective in hiking sales than using individual techniques separately, new USDA research report shows.

CIRCLE 76 ON READER SERVICE CARD

CIRCLE 77 ON READER SERVICE CARD →

PACK IT

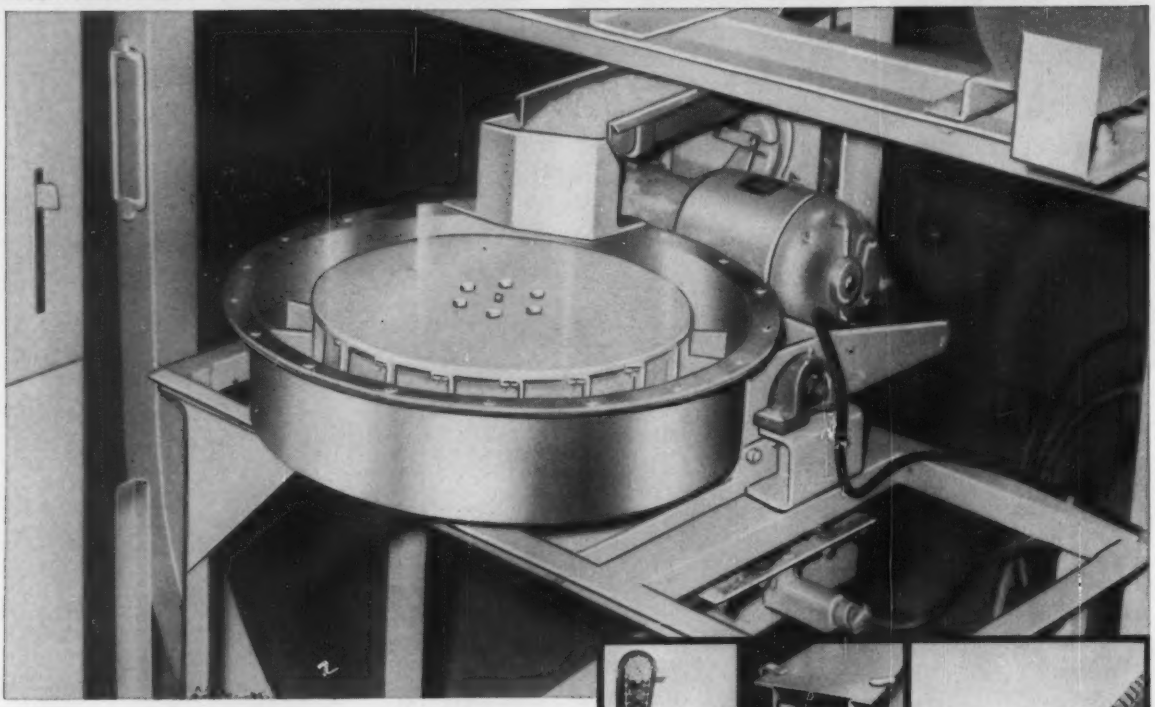
with revolutionary smokeless CCA bacon cartoners

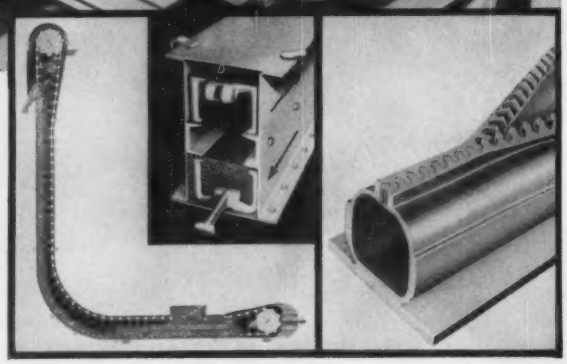
For a fast, clean, smokeless packaging operation, nothing measures up to the new CCA bacon cartoner. Its exclusive method of localized impregnation, without direct contact, prepares only those surfaces to be glued... before the bacon is packed. No direct heat is applied to the carton during or after product insertion. This spares your product contact with damaging high temperatures, eliminates unpleasant wax fumes, and retains the protective characteristics of the wax and the exterior package appearance. Quick conversion for carton size change. Double hoppers available for packing two grades of bacon. To **pack it—move it—sell it** is the business of CCA packaging.

CCA

CONTAINER CORPORATION OF AMERICA World's largest producer of paperboard packaging • Chicago 3... 122 strategically located manufacturing centers
Folding Cartons, Shipping Containers, Sefton Fibre Cans, Molded Plastic Products, Point-of-Purchase Displays, Paperboard

STEPHENS-ADAMSON





S-A CONTINUOUS WEIGHER PROVIDES EXTREME ACCURACY!

The STEPHENS-ADAMSON Continuous Weigher weighs material continuously while in motion with extreme accuracy. Material entrance and exit points are in line with pivot axis of weigher providing for easy installation within existent processing operations and completely eliminating all discharge terminal errors. The unit handles hot material with equal accuracy. Minimum headroom is required. The weigher can be adapted with control equipment for accurate gravimetric feeding without requiring extensive plant alterations. STEPHENS-ADAMSON engineers will be happy to work with you on automating your processing operations.

S-A REDLER CONVEYOR

Skeleton flights, linked together and moving through totally enclosed casings, induce the mass movement of powdered, granular or flaky bulk materials in any direction. Gentle conveying action and sealed casings mean maximum protection for materials handled. Redler units combined with Continuous Weigher offer automatic operation. Request Bulletin 358.

S-A ZIPPER CONVEYOR

Literally a moving, material-carrying conduct, the zipper closed belt, conveyor-elevator is capable of transporting bulk materials in any plane, to considerable heights and around obstructions. Bulk materials are conveyed free of breakage, agitation or segregation within the sealed and dustight belt. The zipper combined with Continuous Weigher is ideal for automatic feeding operations. Request Bulletin 349.

WRITE FOR BULLETIN 958

S-A

ENGINEERED BULK HANDLING SYSTEMS

SPEEDWALK® PASSENGER CONVEYORS

SPHERICO® BEARINGS & ROD ENDS

ENGINEERING DIVISION

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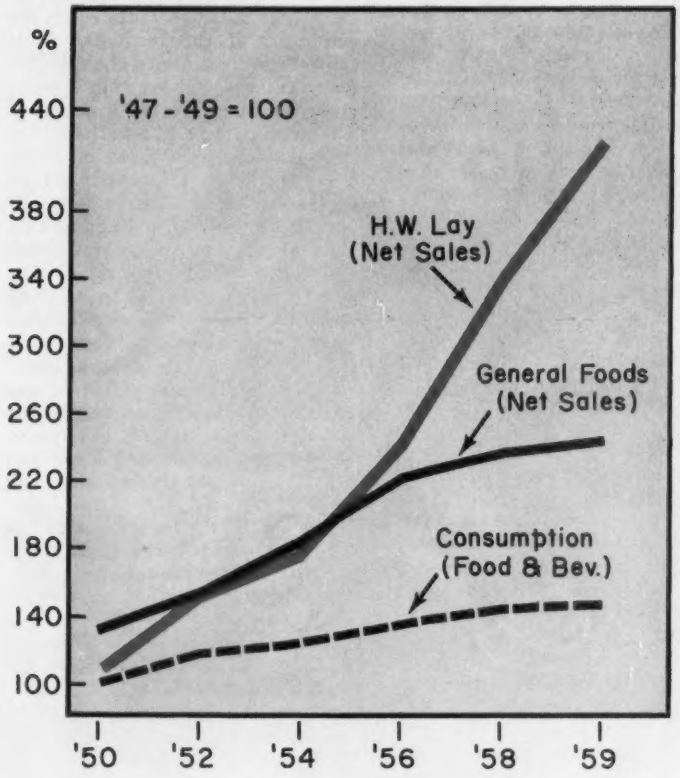
PLANTS LOCATED IN: LOS ANGELES, CALIFORNIA • CLARKSDALE, MISSISSIPPI

BELLEVILLE, ONTARIO

Lay Sets Hot Pace



Profit % Up, Too

Year	H. W. Lay	Gen. Foods
'51	1.9%	4.4%
'52	1.8	3.2
'53	2.7	3.5
'54	2.5	3.6
'55	2.5	3.9
'56	2.4	4.2
'57	3.5	4.5
'58	3.9	4.8
'59	4.9	5.1

SMALL BUSINESS OPPORTUNITY is reflected in streaking 10-yr. sales rate of Lay compared with industry-leader General Foods. Both big GF and smaller Lay have parlayed shrewd investment and marketing strategy into sales curves well above total food and beverage consumption. Profit percentages also hover around healthy 5% mark for '59, indicating intelligent planning of both big and little firms. Lay's expected sales of $30 million for '60 foreshadows firm's move out of "small business" category.

H. W. Lay Moves Up Fast

Snack foods pay off in booming sales and steady profits for growing H. W. Lay & Co. Expansion is key, but shrewd marketing, new product development, and management training play major roles

ONE OF THE BIGGEST success stories of the past two decades has to be the spectacular sales rise of H. W. Lay & Co., Atlanta-based producers of potato chips and snack foods.

From a modest gross sales figure of less than $1 million in '41, Lay can now point to a '59 total of over $25 million—and justifiably expect to hit $30 million in '60.

Most noticeable has been the leap in sales during the five years since '54, a jump of about 150%. And it hasn't been sales for sales sake, either. Lay's after-taxes profit percentage of net sales has steadily moved up to a healthy 4.9% in '59.

In '41 and the years to follow, profit percentage was kept down below 3%. Lay management plowed money back into the business for expansion and modernization, beginning a long line of acquisitions.

In the past five years alone, Lay has purchased the Richmond Potato Chip Co.; Tas-Tee Pretzel and Potato Chip Co., Huntingdon, W. Va.; Halter's Pretzels, Inc., Canton, Ohio; and Brooks Potato Chip Co., Springfield, Mo. In addition, firm purchased all the assets of Capital Frito Corp., Bethesda, Md.

Sweeping as the changes have been, however, there have also been a few "constants" through the years. Among these is President and founder Herman W. Lay himself. In '32 Lay went into business on his own as the Nashville distributor for Barrett Food Products, an Atlanta potato chip manufacturer.

This beginning was far more modest than the term "distributor" suggests today. What Lay had was a single one-man route, which he covered in his 1928 vintage auto. In a few years his business, operating from a Nashville warehouse, had grown to include five routes and six men. Four of these six men are executives in today's sprawling company.

In '37, Lay's organization, which by then had a 25-man payroll, left its warehouse headquarters in favor of better facilities and branched out into the manufacture of popcorn and peanut butter sand-

FE Staff

wiches. The first real milestone came in '38 with the opening of a warehouse in the Chattanooga territory.

Further growth steps followed in rapid-fire succession. In '39 Lay formed a corporation — purchased Barrett's Atlanta and Memphis plants—and moved his company headquarters to Atlanta. Two years later his firm reached into the promising Florida territory with the purchase of Barrett's Jacksonville plant.

Lay plants then sprang up in Jackson, Miss., Louisville, Ky., and Greensboro, N. C. At the same time, sales offices or branch warehouses were being established in the larger cities of seven southern states.

Today there are 43 Lay sales distribution centers (25% of the company's sales come from franchised distributors) and ten manufacturing plants spread over eighteen states, the District of Columbia and Puerto Rico. Employees number well over 1,500.

To keep its network of physical facilities running at top efficiency, the company has carried on a constant expansion and modernization program. It has just completed a new $400,000 plant in Greensboro, and is well along with construction of a $900,000 Washington, D. C., plant which will consolidate present Washington and Richmond manufacturing operations.

The $2-million Chamblee, Ga., plant, completed in '56, produces the entire Lay line of snack foods. Fritos Corn Chips (under an exclusive southeastern territory contract with the Frito Company, Dallas, Texas, 1945) are made at Washington, D. C., and pretzels and chips at Canton, Ohio. All other plants turn out chips exclusively.

New Products, Too

Expansion has not been limited to facilities and new marketing territories. New products introduced in the last few years include Bakon Puffs and Cornetts. It was Lay who also introduced the country to the barbecued potato chip. Miniature French fried potatoes marketed under the name "Spudsnax" is the latest item.

From Lay's rapid, far-flung growth, one might conclude that the company has just sort of grown like Topsy. But H. W. Lay & Co. is no Topsy. Every phase of its expansion has been done with map and lay-out. Herman Lay is a meticulous planner who leaves virtually nothing to "opinion" or to "guesstimate."

"We insist that new plants be planned to the final square foot. For us, this involves taking sales forecasts for that particular plant —figures from a similar plant in a similar situation won't do—and projecting these figures for one, three, five and ten years. Usually, we end up building on the basis of anticipated growth somewhere within the next three- to five-year period, but we design to allow for the most economical expansion possible. The 10-yr. projection gives us guidance in planning for future expansion."

Expansions of existing markets are handled in the same methodical way. "We have a route engineering department that makes a complete analysis of the area where an expansion is contemplated. It analyzes distribution by cross-section method, and checks buying power and other influences."

Flexible Budget

This detailed planning also carries over into budgeting. "We are budget-minded, although we don't regard the budget as a rigid document that must be followed to the detriment of the business. It is subject to constant change for many reasons, but we plan a minimum of three years in advance. The maximum is 42 months.

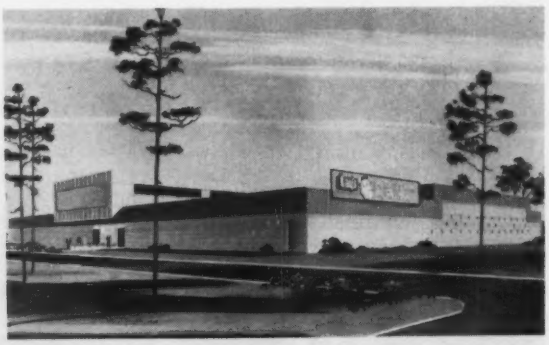
"Our budget is based on three considerations: 1) breakdown of expected sales by area by item; 2) anticipated cost of selling; and 3) planned expenditures for new plants and plant expansions. The sum of this enables us to build an operating statement and a balance sheet for at least three years in the future. This data is reviewed every six months. The one phase of our business that cannot be planned far ahead is acquisition. It is impossible to know in advance when you can make an acquisition that will fit in."

For much of this planning, Lay relies on outside consultants. "We are not consultant-happy, but we firmly believe in using consultants when we have a job that requires additional manpower — we don't think it feasible to increase our staff on a temporary basis. Then, too, we like to keep fresh viewpoints. We use consultants for both facility planning and applied research. They come in to work on special projects along with our own research and development department."

The conservatism which Lay shows in minutely detailed planning is also reflected in his technique for opening up brand new marketing areas, done principally through acquisitions. Why? He answers simply, "It's cheaper that way."

Just as Lay believes in calling in outside consultants to supplement the thinking of his own personnel,

(Continued on page 83)



HUGE EXPANSION PROGRAM, sparked by growing sales and the southeastern area's economic progress includes construction of $900,000 plant near Washington, D. C. (right). Other plants have been completed or are in process at Jacksonville, Fla., and Greensboro, N. C. Chamblee, Ga., headquarters (left) produces full line of Lay products.

CIRCLE 81 ON READER SERVICE CARD ➔

SERVICE TEAM—This line-up is part of the reason why Metropolitan has been able to keep customer service up—costs down. H Model Mack-built Thermodyne® diesel-powered tractors like these handle bulk deliveries.

MACK
for over 7 straight years
NO.1
by far in sales of diesel trucks

Figure on Macks when trucks figure in profits

Stainless steel tankers of Metropolitan Fats & Oils, Inc., Jersey City, N. J., make on-schedule deliveries up and down the east coast from New England to the Carolinas . . . are known for their fast, dependable delivery of quality products.

Because highway transportation is the lifeline of Metropolitan's business, a close tab is kept on the economics of their truck operation. Says President Henry Oelkers, "Our Mack diesels are the most economical, reliable and generally satisfactory trucks we have ever owned. Each truck in our fleet averages over 2,000 miles a week . . . performs equally well in city traffic or on cross-country runs."

Mack makes sure you get the truck economy you need through the exclusive Mack practice of designing and building all its own major components. This results in what is called Balanced Design and assures that engines, gears, transmissions and other vital truck components will work together as an integrated unit for the greatest possible efficiency, performance and long life. Trucks that stand up under the most demanding operating conditions —not only when new, but after years of service—can mean the difference between a profitable operation and one drained by high costs per mile, unnecessary downtime and excessive maintenance.

Your local Mack branch or distributor will gladly give you full details on the truck best suited to your operation. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

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TRUCKS

SARCO TOPICS

How to get dry steam, automatic temperature control, and rapid heat-up in processing food

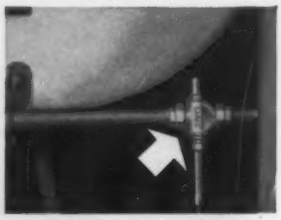
How to dry out steam in conditioning grain

Gwinn's solution: Sarco Thermo Dynamic Steam Trap on grain conditioning unit.

Slugs of condensate and wet steam need not disturb the processing of grain. This problem may be caused by manual operation of valves, which makes it difficult to control the steam's moisture content. It was solved at Gwinn Bros. & Co., Huntington, W. Va., with a system of traps and valves which featured a Sarco Thermo-Dynamic steam trap, Type TD-50. Moisture control is now fully automatic, product is more uniform, and the operator is now free to perform more useful work.

How to control jacketed kettle temperature automatically and economically

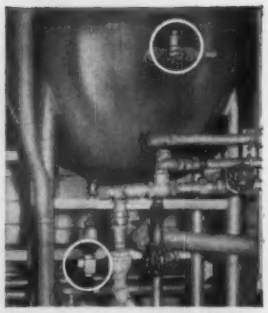
Manual temperature control of steam jacketed kettles is uncertain and frustrating. Install self-powered automatic Sarco temperature controls which are inexpensive, simple, dependable, accurate and save steam. They are easy to install on any equipment, without complicated gadgets that require specialized maintenance. Self-contained, with no exposed mechanism, they are not affected by cross-ambient temperature or bulb elevation.



Sarco self-powered temperature control also cuts down steam waste on kettles.

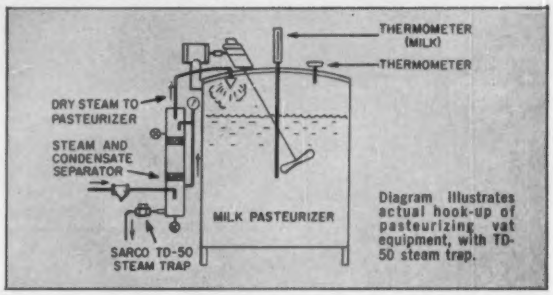
Get rapid heat-up, maintain cooking schedules —with proper steam trapping.

When cooking schedules aren't being met, and parts of the steam jacket fail to heat, examine your trapping system. Investigation usually shows condensate and air are not being adequately discharged. The problem was solved at F. and F. Laboratories, Chicago, Ill., by equipping each kettle with a ¾" Sarco TD-50 Steam Trap, installed close to the condensate outlet. In addition, the jacket of each kettle was vented by a ⅜" Sarco Thermostatic Air Vent. Now not only is heat-up rapid, but operating cycle is on schedule, and the TD-50's haven't even required cleaning in three years of operation.



Complicated connections and check valves are eliminated on F. & F.'s Kettle. Note simple piping of steam trap and vent.

Rapid discharge of condensate guarantees dry steam for special pasteurizing problem


THERMOMETER (MILK)
THERMOMETER
DRY STEAM TO PASTEURIZER
STEAM AND CONDENSATE SEPARATOR
MILK PASTEURIZER
SARCO TD-50 STEAM TRAP
Diagram illustrates actual hook-up of pasteurizing vat equipment, with TD-50 steam trap.

Michigan State law requires that air and foam in the space between milk level and pasteurizer vat cover be heated to at least the temperature of the milk during processing. Fogg's Dairy Sales in Holland, Mich., used dry steam at 100 psi for the purpose but had a problem in eliminating condensate prior to introducing the steam into the air space. Installation of a Sarco TD-50 Steam Trap and strainer at the bottom of the control chamber completely cleared up the difficulty by discharging condensate as rapidly as it formed. Mr. Fogg says: "Most reliable and trouble-free trap we've ever used. Body is compact and easily cleaned, important where scrupulous cleanliness is essential."

★ ★ ★

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For practical information and technical data on steam trapping and temperature control, contact your Sarco sales representative or district office, or write:

SARCO

SARCO COMPANY, INC.
635 MADISON AVENUE, NEW YORK 22, N. Y.
PLANT: BETHLEHEM, PA.

STEAM TRAPS • TEMPERATURE CONTROLLERS
STRAINERS • HEATING SPECIALTIES

SARCO

Here are 7 Sound Reasons Why the Thermo-Dynamic® Does a Better Job of Trapping

1. *Simplicity*—has only one moving part. 2. *Maintenance*—practically zero. 3. *Wide pressure range*—one trap for all pressures from 10 to 600 psi. 4. *Uniform performance*—operates equally well on heavy, light, or no condensate load. 5. *Operates against back pressures*—up to 50% of inlet pressure. 6. *Rugged*—unaffected by superheat, water hammer, vibration, or corrosive condensate. 7. *Minimizes inventory* of spare parts.

Maintenance Time: 40 Seconds. If it now takes your maintenance crew more than a couple of minutes to service an ordinary trap, you're throwing away valuable time. This Sarco Thermo-Dynamic can be cleaned, blown out if necessary, and reassembled on the line in as little as 40 seconds.

For Prompt Information on the TD-50 . . . or for fast help on the efficient solution of any steam trapping problems, get in touch with a SARCO District Office, Sales Representative, or Distributor. (There's one near you.)

Only SARCO makes all 5 types:

Thermo-Dynamic* • Thermostatic • Liquid Expansion • Float Thermostatic • Inverted Bucket

*U.S. Pat. No. 2,817,353 TM Reg. U.S. Pat. Off. 1409

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CIRCLE 83 ON READER SERVICE CARD

so does he believe in close communication among company executives. "This is no one-man operation," he emphasizes. Management is set up on a line and staff basis. In addition to Lay, Executive V.-P. William B. Oliver and Administrative V.-P. George Williamson comprise the executive committee.

Says Lay: "This is a closely-knit staff—we grew up together. In the absence of the Executive Vice President, I function as the operating head; if the Administrative Vice President is absent, I share his responsibilities with the Executive Vice President. In my absence, the Executive Vice President has full authority.

"The three of us make up the Policy and Planning Committee. In addition to heading the executive committee, my principal duty is directing the growth of the company, by way of research, new plants, expansions, acquisitions, and new product development.

Group Thinking Important

At Lay's, the "line" functions under a unique and interesting procedure. "We are convinced that individuals as such are very often reluctant to express their true thoughts regarding company matters but that they will say what they think as a group. Thus, we have evolved what we call a Manager Advisory Committee—a rotating group of nine men representing some 25 operating managers from the field organization. This committee holds a two-day meeting quarterly. It is charged with the responsibility of making suggestions and recommendations in every phase of the business, both from the policy and operations standpoint. They come up with anything from suggested changes in our company insurance program to reasons for replacing a certain type of plant equipment."

The chairman of this group (elected at each meeting), brings his report to the operations committee and to Lay and discusses the written recommendations in detail. The operations committee consists of these v.-p.s—executive, administrative, manufacturing, marketing, purchasing, and assistant operations. Lay assigns various topics to appropriate officers for study.

Lay explains how this organizational set-up came into being: "About seven years ago we found we were rapidly shifting from a small business to a size where we were beginning to feel an acute lack of communication and were about to reach that point where too many people had too many 'bosses'. So, we had seven of our chief officers take an intensive five-week management course which pointed up the philosophies of modern management that were proving successful. Our present program is the result of this course, and it has remained basically the same since its inception."

For all the efficiency with which the company is operated, however, Herman Lay modestly points out that he started his business "at an opportune time."

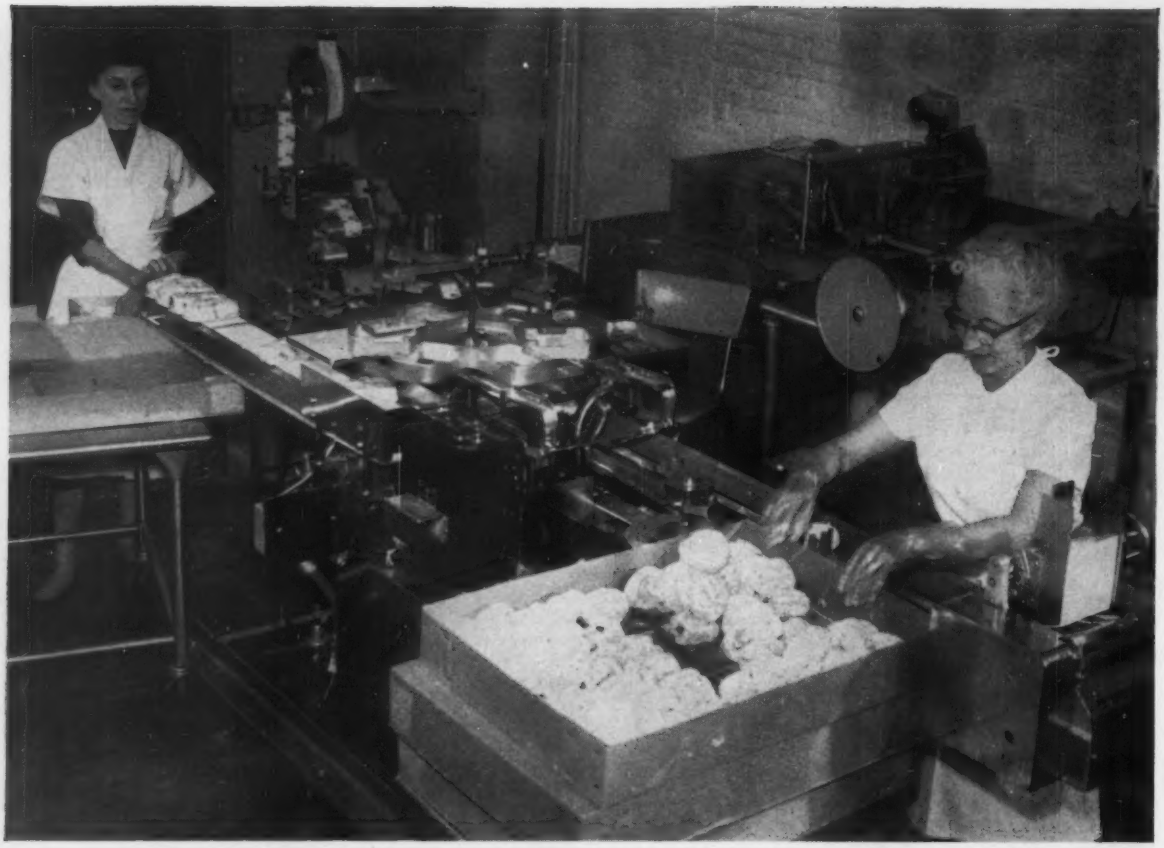
"In the beginning, in the early 30's, there was only one way to go—up. Then certain developments came along to increase the snack food business—there was the repeal of prohibition in 1933—more and more women began to work—self-service stores sprang up to give rise to impulse buying—then came television. Improved packaging, better products with increased longevity, more leisure time resulting from the shorter work week, more holiday parties, and more entertaining at home have greatly spurred snack food sales."

As to what the future portends, Lay says: "We are hopeful that we can maintain our present rate of growth, but we must be alert. We feel that this industry has not yet reached its peak in growth and consumer acceptance. The South offers a particular opportunity because the region's buying power per capita—though lower than the average—is increasing at a rate greater than the national average.

"As a basic policy we are dedicated to continued growth, expansion, and development. During the next three years we expect to spend $3,500,000 for new buildings and equipment. We have just acquired a site in Louisville, and engineering plans are underway for a plant costing in the neighborhood of $500,000."

Lay's forward look is by no means confined to physical expansion alone. "Now that we have reached a certain maturity and trademark acceptance, our thinking and long range research and development program are not necessarily confined exclusively to the snack food segment of the convenience food industry."

Judging from the jars of pickles and new peanut products on his desk, this step may not be such a "long range" one for Herman Lay, after all. Or is it for you if you match the foresight of H. W. Lay & Co. (End)



Only two girls are needed to operate How-Dee's CKDW-3 WRAP-KING. This machine, used to wrap doughnuts, cakes, pies, sandwiches, and various other items, is capable of operating at a rate of 60 packages a minute. It handles any commercially-available film.

CROMPTON & KNOWLES UPS PRODUCTION 25%, CUTS COSTS 25% FOR HOW-DEE

Equipment also sparks sales increase

"WE FIND THAT PEOPLE EAT WITH THEIR EYES," says Bernard Kline, Operations Manager for How-Dee, one of New England's largest automatic merchandising firms, "and Crompton & Knowles' CKDW-3 WRAP-KING gives our packages the eye appeal that adds up to increased sales. But that's only the beginning.

"With the CKDW-3 turning out a package every second, our production is up 25%, yet costs have dropped by the same figure. The whole operation requires just one girl feeding and one packing off. The CKDW-3 wraps, seals, labels, code dates, and prices.

"The versatility of our Crompton & Knowles equipment is another advantage. We can switch from one product to another with practically no down time—that's essential when you're packing a wide variety of items. And the superior packaging means longer shelf life for our products."

Crompton & Knowles is a highly-specialized engineering organization, capable of solving *all* your packaging problems. Whether you require a single machine wrapping a standard product . . . or a completely integrated project to develop new concepts of packaging, consult C & K, makers of high-speed, automatic machinery for wrapping, packing, case forming, sealing and gluing, can palletizing and depalletizing.

For full details, including leasing arrangements, write Crompton & Knowles Packaging Corp., Holyoke, Mass., U.S.A.

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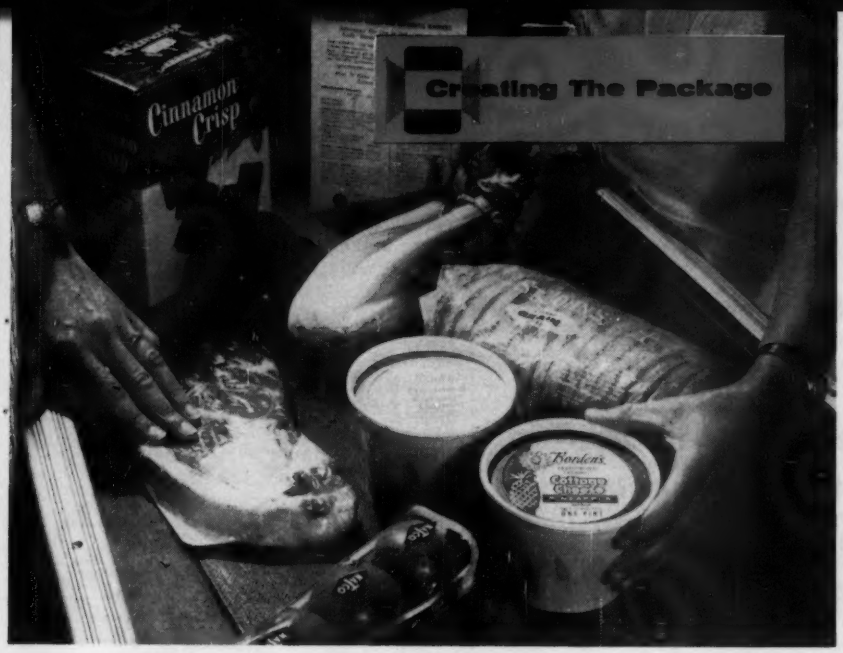


FUNCTIONAL container of high-impact polystyrene sparks in-store sales, packs refrigerator-to-table convenience. Rolled lip adds rigidity, and nesting shoulder permits easy, quick stacking.

INSULATION BONUS: Sandwiched air-space construction of hi-density polyethylene cottage cheese tumbler allows . . .

. . . re-use as drinking cup for hot beverages. Unit also withstands low temperature freezing.

Rigid Plastics Spur Dual-Use Value

High-Density polyethylene and high-impact polystyrene tumblers pack stronger in-store sell, more in-home table-ready convenience. And price is low

FOOD PACKAGERS looking for more economical, versatile containers got two big aids last month from the rigid plastics field. Debuted were: (1) A double-duty, insulated unit injection-molded from hi-density polyethylene, and (2) a thermo-formed unit made from high-impact polystyrene competitively priced with wax paper tubs.

The two types, both slanted to "table-ready" packaging, offer two-fold benefits. They serve as attractive in-home users, and double as practical re-use premiums.

Both containers, currently, are being slanted to cottage cheese use. But makers insist they're adaptable to wide range of products, from liquids to powders. The polyethylene cup, for example, is being test-packed with cheese and meat spreads, salads (gelatin, potato), peanut butter, jams and jellies, frozen food specialties, flavored syrups (chocolate), and instant milk powder.

Consumer appeal of the polystyrene pack is rated high by Borden Co., first to use the new package. Test marketing in three cities (Dayton, Dallas, Madison, Wisc.), company reports, indicated that: (1) Where 55% of the homemakers said they would table-serve cottage cheese in paper tubs, 80% would do so in the plastic dish; and (2) 55% would serve the plastic dish to guests vs. only 10% for paper.

Different Tacks Taken

The poly jug, made by Proven Products, Skokie, Ill., is injection-molded from plastic sheets (Bakelite and Celanese). Inner and outer walls (0.050 and 0.065 in. thick) are heat-sealed for a leakproof bond with inner dead-air space insulation. Overall wall thickness (including sandwiched-in air space) is 0.132 in.

Inner wall's color printing is carried over to a ½-in. lip band on the outer surface. Alternately raised and recessed bands and snap-on lids (high-density poly) are, within containers' tops, internally expandable. Semi-flexible lids (0.045 in. thick) carry the necessary color-printed information.

Double-wall cups are heat-resistant, can withstand low-temperature freezing and also heat-processing above 260F. without cracking, Proven Products says.

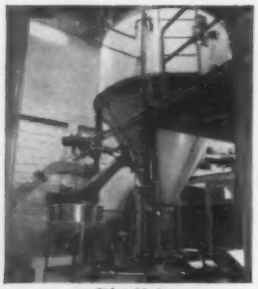
Poly containers are available in two 10-oz. styles—with or without cup handles—as well as in 12- to 14-oz. sizes with trivet legs. Latter type is popular for nuts, cheese, confections, and salad items. Proven Products plans three additional styles.

Containers' primary purpose, of course, is to trigger impulse buying. Also, the insulation angle should enhance re-use applications.

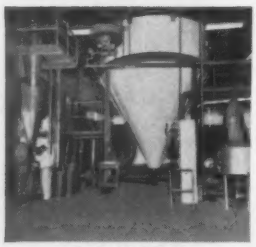
When used for filling cottage

Portable Unit

Utility Unit



Pilot Unit



Industrial Unit

NERCO NIRO®

SPRAY DRYER LABORATORIES

offer the largest, most modern and diversified facilities for research, engineering, testing and custom drying

Nerco-Niro maintains the most complete spray dryer laboratories in the Western Hemisphere.

The diversified dryer facilities permit research, testing and custom drying on the best suited scale. Tests may be started in laboratory-size equipment and progress in stages to full scale volume production or, research may be confined to any intermediate step. Analysis of raw material and finished product may be evaluated in our well-equipped analytical lab.

The four dryers pictured at the left are equipped with all stainless steel contact surfaces. Throughout the laboratories, process steam is furnished for the jacketed tanks and pipes. Modern receiving and storage facilities are available for all types of shipment.

You are cordially invited to visit and inspect our facilities. Arrangements must be scheduled in advance so as not to conflict with confidential spray drying tests being conducted for our clients.

Nerco-Niro Spray Dryer Div.

NICHOLS

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Montreal

cheese, tumblers can be automatically dispensed. However, cups (because of handles) must be hand-fed onto the packaging line. Here, a single-nozzle, piston-type volumetric filler dispenses 10-oz. of product into containers, with lids automatically snapped into place at speeds from 30-40/min.

The polystyrene containers are thermo-formed from high-impact extruded sheet stock (Dow) by Illinois Tool Works' Conex Div., Des Plaines, Ill. Advantage of this procedure, says Conex, is that it results in thinner wall construction without sacrificing any of the plastic's physical properties.

Also, the process reportedly holds the key to the container's competitive price, according to Conex. Company contends that the fabrication method "allows commercial production of plastic containers at a material weight substantially less than that used by any other process." Secondly, says Conex, output speed and automatic features lower the container's cost.

Cost was also brought down by replacing the conventional paper and metal lids with polystyrene tops. Metal was ruled out because it could cause stress cracking, and paper was eliminated because its absorption could cause distortion.

Vertical flutes on the side walls provide containers with added column strength, making them stand up better under existing filling and capping lines. As a result, no special attachments or filling equipment is needed.

Test Reports Glow

Extensive field checks on the polyethylene containers in Cleveland and Minneapolis — St. Paul highlighted their drawing power. Dairies in the two areas carried out city-wide cottage cheese promotional campaigns marked by cooperative advertising programs.

Thirteen Twin Cities' dairies doubled their cottage cheese sales (from about 50 to 100 tons) in a 10-week period. In Cleveland, Old Meadow Creamery moved 1,850 eight-cup sets. These sales didn't affect cottage cheese packed in regular cartons, and were actual plus sales. As a result, business jumped 10%.

O. A. Dean Dairy Co. sold its quota of 3,500 sets, tapped 19% of its 18,000 home-delivery customers for sales. Daily per-route cottage volume jumped from 9½ to 17½ units, a striking 85% increase.

(FE Staff)

CIRCLE 86 ON READER SERVICE CARD

CIRCLE 87 ON READER SERVICE CARD ➔

Cost-cutting step taken 26 years ago still paying off at Hamm Brewery —they chose NONPAREIL Turbine Oil

Situation: In 1934 the Theo. Hamm Brewing Company installed two 1,000 kw. turbines. The brewing firm wanted to be sure there would be no downtime due to failure of the lubricant. Neither did the company want to spend time checking the oil's performance or adding new oil to sweeten the old.

What was done: Brewery management followed the advice of the Standard Oil lubrication specialist. They installed NONPAREIL Turbine Oil, the only oil, then as now, that carries with each fill a life-of-turbine guarantee.

What has happened: In 26 years since the turbines were put in service there has never been any downtime due to lubrication problems. In 1947 a 2500 kw. turbine was added to the system and another 3000 kw. unit was put in service in 1953. These, too, have used NONPAREIL Turbine Oil with the same results.

What you can do: Get the full story on NONPAREIL Turbine Oil from the Standard Oil office near you in any of the 15 Midwest and Rocky Mountain states. Or write **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

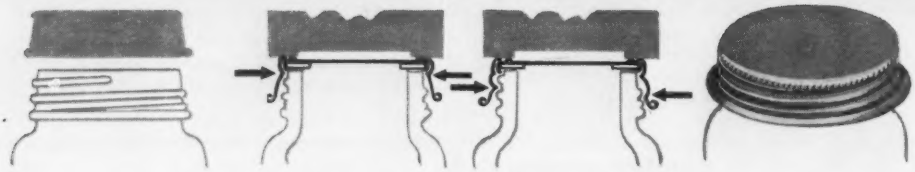
Quick facts about **NONPAREIL Turbine Oil**

- Will not permit formation of harmful acids
- Will not permit formation of sludge or oil varnish
- Will maintain good demulsibility or water separating characteristics
- Has high resistance to foaming
- Contains adequate rust inhibitor

You expect more from **STANDARD** *and you get it!*

Hamm Brewing Co. assistant chief engineer Steve Wappel and Standard's Dick Anderson discuss recent oil analysis. Dick Anderson knows his way about an industrial power plant. He's been providing customers with technical service on lubrication for five years. Dick has an engineering degree from the University of Minnesota and has completed the Standard Oil Sales Engineering School.

EACH CAP...



The unthreaded aluminum closure is placed on the jar and seated on sealing surface with a controlled uniform pressure.

Rollers revolve and form the closure by shaping the skirt against the glass threads. Since the protective liner is not turned against the glass lip during sealing, there is no cutting or scoring of the liner and no danger of air leakage.

A CUSTOM FIT!

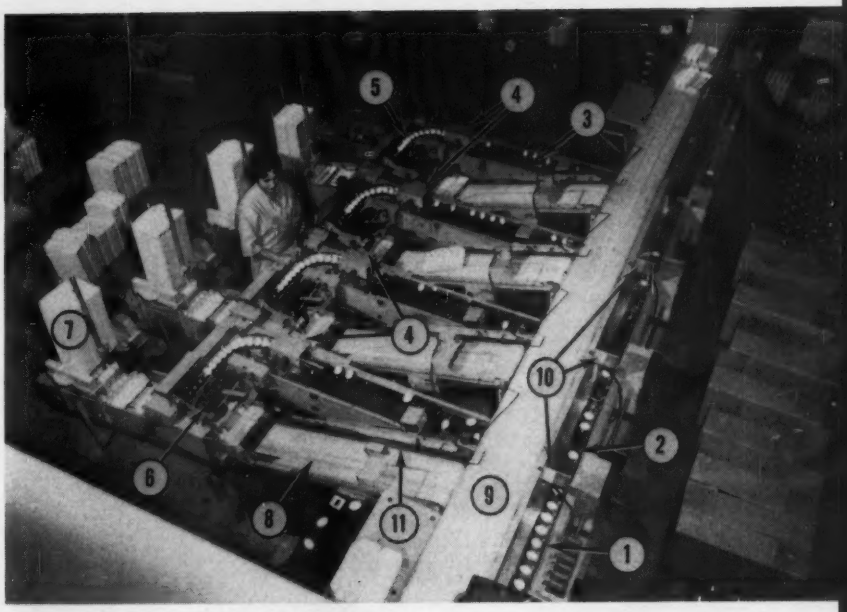
WITH ALCOA'S NEW ALUMINUM SCREW-ON CAP

Alcoa's Roll-On process means that every aluminum cap is tailor-made to fit each jar, regardless of maximum and minimum tolerance. And because of this individual fitting, the contents of every baby food jar are getting the best protection available today. The Roll-On process also insures maximum production efficiency with minimum downtime.

Acid-resistant, corrosion-resistant aluminum caps are friendly to food. Straight meats cannot affect the aluminum cap liner. And Alcoa® Aluminum caps stay bright and clean . . . never tarnish. So where protection counts . . . you can count on Alcoa Aluminum caps. Nine out of ten mothers prefer them. We invite your inquiry. Write Aluminum Company of America, Box 2047-K, Pittsburgh 19, Pa.

ALCOA ALUMINUM

Better Packaging



AUTOMATIC LINE features flight conveyor (1) that moves eggs across scales (2) which ejects products onto transverse orienting conveyors (3). Electric eye (4) actuates next flight-conveyor (5) which delivers eggs to carton-packer (6). Cartons from magazines (7) are positioned under carton-packer, and take-away belt (8) moves filled cartons to common conveyor (9). Electric eye (10) controls converging traffic by stopping cartons with brake (11).

Mechanized Egg Handling

Grading and packaging of eggs is simplified at West Coast co-operative which utilizes automatic handling equipment to reduce labor costs and boost efficiency

AUTOMATION may be the key to efficiency in egg handling, grading, and packaging in both large and modest-sized companies.

It is for members of the San Diego, Calif., Co-op. Poultry Assn., whose eggs are now being fully handled on automatic equipment at lower overall direct labor cost than the previous manual operation.

Line, manufactured by Barker Egg Equipment Co., Ottumwa, Ia., has a rated capacity of 225 cases/day (30-doz./case) and requires only five operators. Production on hand-packed line was slightly higher but required the work of 12 people at 33⅓% more direct labor cost.

Producers rough-grade and wash (110F. water) eggs. These are packed in 2½ doz. filler-flats, mist oiled, and cased in 30-oz. ranch cases to be delivered to the plant. When stored, eggs are kept under 55-60F. refrigeration at 80% RH to protect product quality.

One filler-flat (30 eggs) is lifted manually from ranch cases by a vacuum egg-lifter and placed on the candling conveyor. Lifter has 30 rubber suction-cups fixed to a square plate attached to a counter-balance. Suction of about 3 psi by vacuum pump is provided to cups to hold the eggs. To deposit eggs on the candling conveyor, the operator releases the suction by a finger-lever adjacent to the lifter's handle.

Candling conveyor is composed of rubber covered, rotating rods. Intermittent rotation of eggs, as they pass over the lighted candling section, allows candler to grade for bloods, blind checks, broken, or excessively large air-cells. Illumination from four 1000 watt mercury-vapor lamps is baffled to divert glare from the candler's eyes.

Meet Flight Conveyor

Intermittent forward motion of the rod-type candling conveyor is synchronized with the flight conveyor to discharge six eggs as six empty flights are in position.

Eggs are rolled along a track by the concave shaped fingers of the roller-chain flight conveyor. En-route they pass over five balance scales, which sort them by weight equivalent to five size-grades (extra large, large, medium, small and pewee). As an egg depresses its scale pan, the balance arm actuates a Mercoid switch. It simultaneously actuates an ejection finger and trips the automatic counter for this size egg. The ejection finger flips the egg from the flight conveyor against a fabric baffle, and onto a transverse roller conveyor leading to the packaging station.

First part of each of these roller-conveyors is the egg orienting section.

If, when an egg is ejected from the flight conveyor, it is properly oriented—so that the large end of its ellipsoidal shape will become available to the vacuum packer—it bypasses the orienting belt. Im-

FE Staff

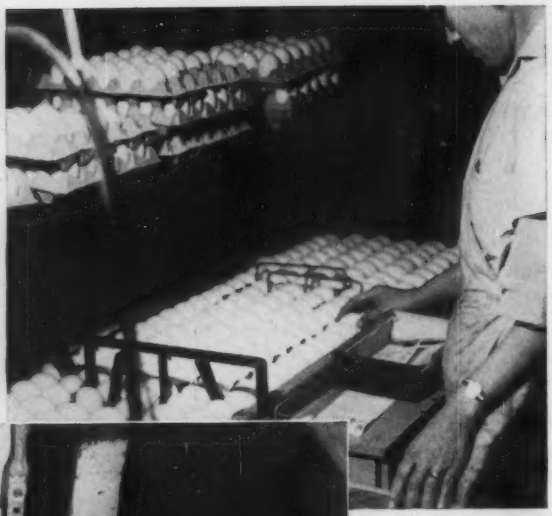
properly oriented eggs move against the belt and are turned in a 180 deg. vertical arc for correct positioning on conveyor.

Conveyor has a tapered guide to provide single file procession of eggs to a small belt-conveyor which feeds to the endless, nylon flight-conveyor. Each flight must contain an egg, so each one passes an electric eye. The eye actuates an electric clutch to move the conveyor one flight forward so it may receive the oncoming egg.

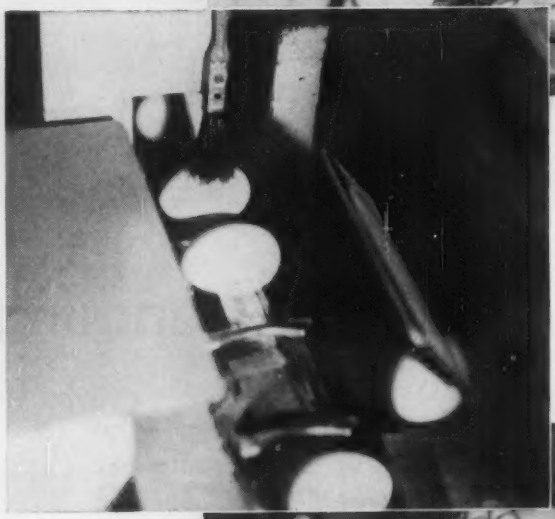
Cartoning cycle of the cam-operated, automatic cartoning device is actuated by a sensitive switch, tripped by the first of the procession of eggs on the flight-conveyor. From its "at rest" position, it moves horizontally forward and its six, rubber vacuum cups grasp the last six eggs on the conveyor. It retracts to its original position and the vacuum cup plate is rotated 90 deg. so that eggs face downward. It then moves vertically down, depositing eggs in carton below. Vacuum is released and cycle is repeated.

Cartons are removed from the bottom of the carton magazine by a single flight helical shaped scalper. They drop onto a belt conveyor equipped with flights and are moved into position directly under the cartoning units.

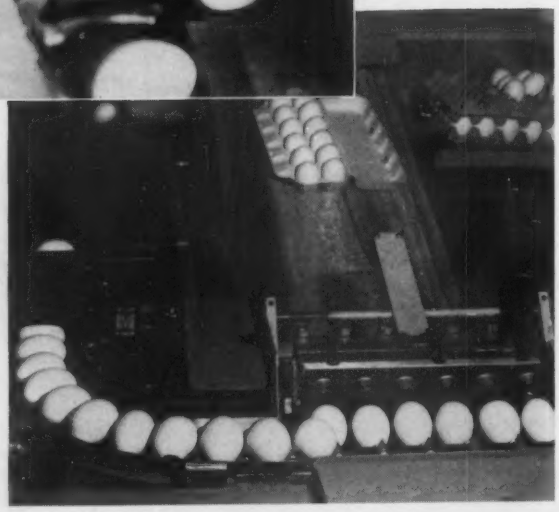
Scalper and the carton conveyor belt are synchronized with the intermittent downward cycle of the automatic cartoning device. As six eggs are placed in a carton, belt moves forward to position the other six nests of the carton to receive the next six eggs. Filled cartons then move onto the take-away belt conveyor and the cartoning cycle is repeated. Inclined take-away belts convey filled cartons to the transverse common belt-conveyor leading to the carton closer and casing station.



MECHANIZED FINGERS on candling conveyor moves eggs six abreast to primary flight conveyor, synchronized for transfer.



EJECTOR flips egg from scale pan against fabric baffle and onto orienting conveyor.



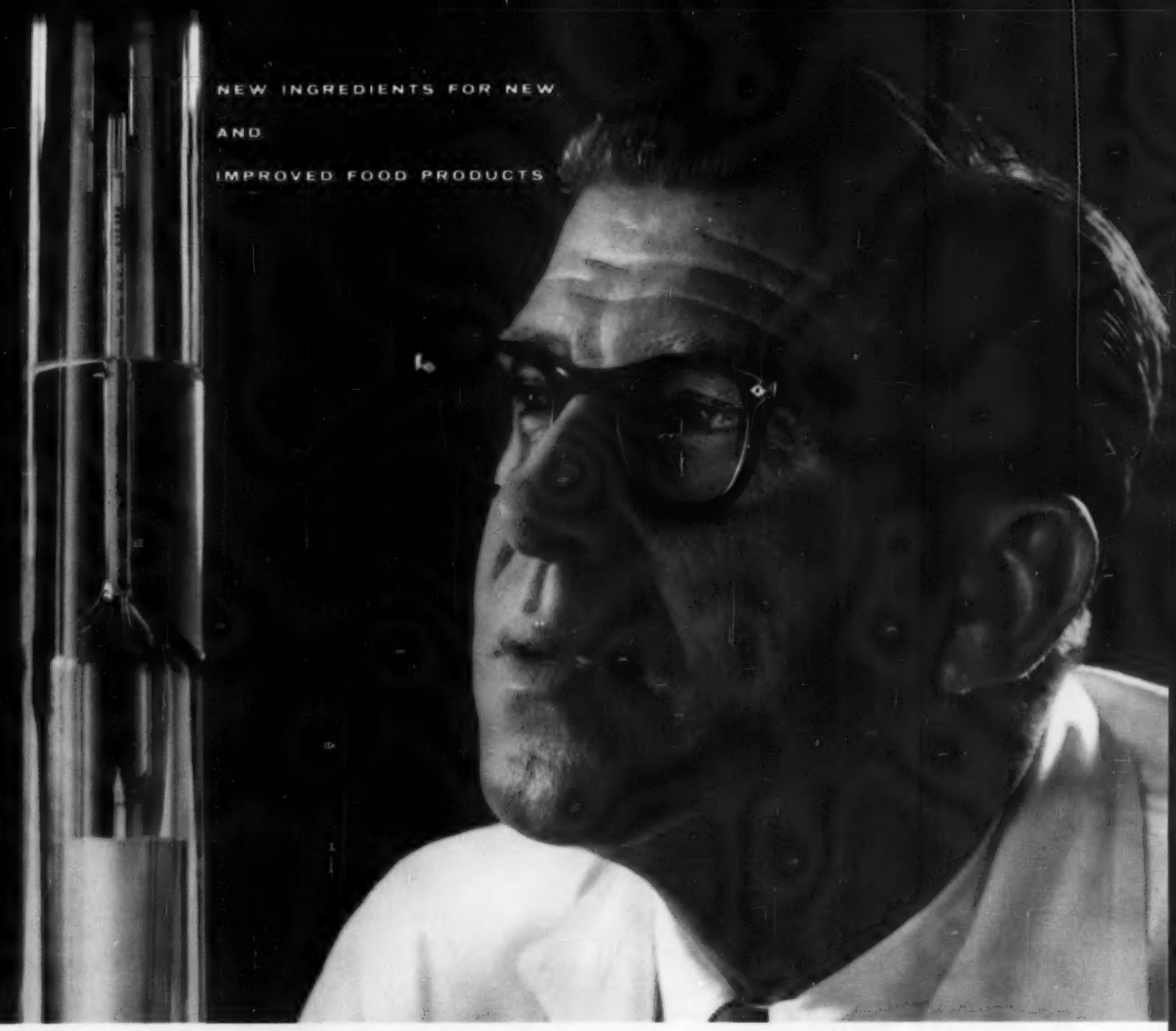
INTERMITTENT NYLON-FLIGHT conveyor, actuated by electric eye, positions eggs for six-headed vacuum carton - packer (right).

'Eyes' Have It

To avoid product damage and handling congestion on the common conveyor, four electric eyes act as traffic controls. These eyes are located on the common conveyor about 4 in. upstream from the discharge ends of each of the take-away conveyors.

Filled cartons move up the inclined take-away conveyor between two opposite rods. One of these is a guide-rod which turns cartons longitudinally on the belt so they will be properly positioned to enter the carton closing machine at the end of the common conveyor. The other is a rubber covered solenoid actuated rod. When a carton on the common conveyor obstructs the beam, eye actuates the solenoid, converging the brake rod with guide rod and stopping the carton from being discharged from the take-away belt. When the obtsructing carton moves out of the path of the beam, the brake is released, freeing the carton to enter the common conveyor.

Cartons move in single file to the carton closer, thence to a circular unscrambler. Cases are manually packed here, with packers selecting the size-grade of eggs by carton color. (End)



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Available with either sucrose or invert base, Flo-Sweet Cane/CSU comogenized blends are just a few of the numerous new Flo-Sweet sugars developed to give you a *combination* of characteristics never before available. To find out how these versatile sweetening agents can best fit into your own new food products development program, consult your Flo-Sweet Engineer or write for the brochure "New Ingredients for New and Improved Food Products." It tells all about four new Flo-Sweet liquid sugars!

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Flo-Sweet Cane/CSU, refinery comogenized, is available in these standard blends:

Sucrose	*CSU*
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80	20
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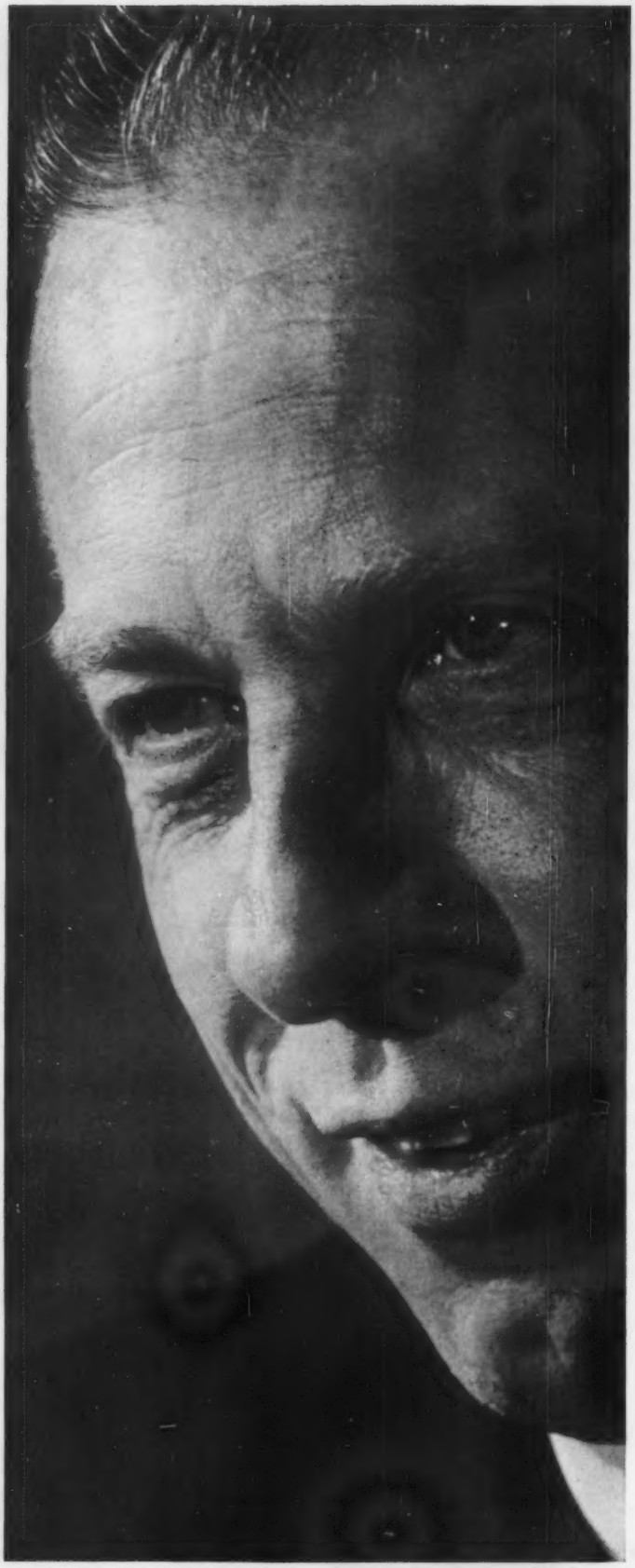

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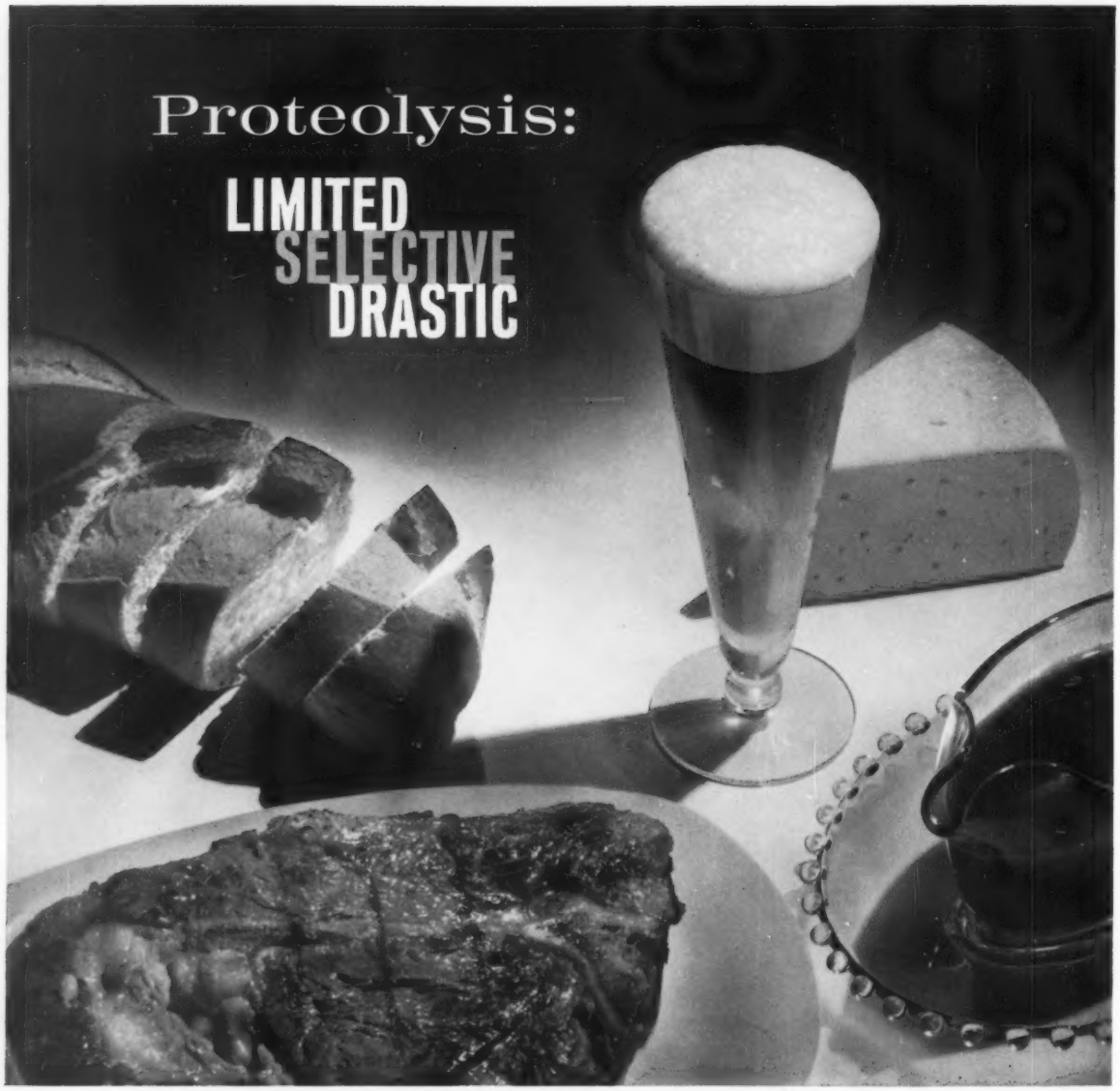
CIRCLE 93 ON READER SERVICE CARD 93



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High Energy, Infrared Radiators Evaluated

Three types of high energy, infrared radiators — quartz lamps, quartz tubes, and calrods—were evaluated. This was done by determining their effectiveness in blanching apple tissue. Data are presented which show how the depth of heat penetration was influenced by wavelength characteristics, voltage input, and energy output of the radiator (see table below).

Heat penetration into apple tissue after 5 min. exposure of three types of infrared radiators at voltage input of 535 volts:

	Quartz Lamp	Quartz Tube	Calrod
Energy as per thermopile watts/cm²	1.36	1.36	1.36
λmax microns	1.16	2.35	2.65
"Corrected" energy between 1.4 and 5.0 microns			
per cent	56.5	72.0	67.0
watts/cm²	.77	.98	.90
Penetration mm	4.1	7.4	5.9
Standard error mm	.068	.110	.186

Infrared radiation was used successfully for blanching celery, apples, and peas prior to freezing and in the preparation of french fried potatoes. General quality of infrared-blanched samples was better than that of samples blanched by conventional steam or boiling water methods. Accompanying weight losses of up to 35% by weight would result in reduced freezing, storing, and handling costs in the case of products intended for later remanufacture.

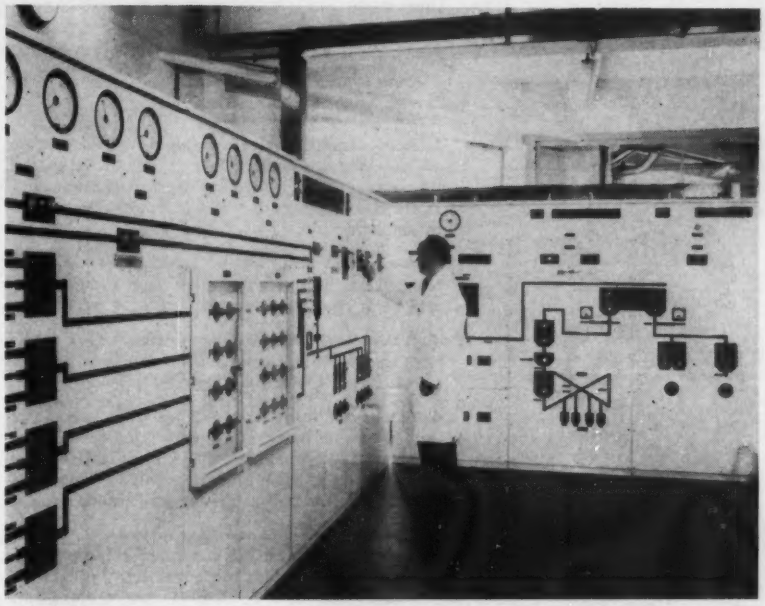
Infrared was substituted for the par-boiling treatment of beef as the preliminary heat treatment in the preparation of beef stew. The color, texture, and flavor of the infrared-braised, canned meat was considered superior to that of the par-boiled meat.—*Food Tech.*, 449-453, Sept., 1960.

Non-SucroseRefractometer Values Studied

The effects of non-sucrose components of citrus juices on their refractometer sugar scale values have been studied.

The only two components whose refractive indices in solution have been compared with sucrose and reported in the literature are citric acid and reducing sugars. Both of these components have lower indices of refraction than sucrose, and therefore give rise to a need for positive corrections for the refractometer sugar scale to indicate true soluble solids.

Other components included in this study had higher indices of refraction than sucrose. Negative corrections required for both amino acids and pulp are greater than positive corrections required for citric acid at equivalent concentrations. Negative corrections required



CONTROL PANEL is nerve center of newly installed, automated system at Wm. Mac Donald & Sons, Ltd., bakery. Benefits are: Lower operating costs and less waste, better sanitation and more consistent end-products.

High Automation Featured in Glasgow Bakery's New System

A newly-developed system for mechanizing formulation and dough mixing in specialty product baking operations, may raise automation to a new high in the biscuit and cracker field.

This new operation at the Hillington (Glasgow) biscuit bakery of Wm. MacDonald & Sons, Ltd., promises to: Drastically lower operating costs, reduce waste, raise sanitation to a higher level, and produce a far more consistent end-product than before. It represents a new concept of handling and storing liquid ingredients, and in introducing materials automatically into the dough mixers in the correct sequence.

The nerve center of the system is a control panel. Once set, the central panel controls indefinitely the feed and quantities of ingredients, and insures the bakery bins and mixers in the system are fed as required. Blend changes are made simply by resetting controls.

To govern the schedule of operations, control desks at the mixers are set with plugs which are easily interchanged to suit individual recipe requirements. Colored lights indicate the progress of the operation, and of each sequence.

The system was developed by Baker Perkins Ltd., England, associates of the American firm—with the collaboration of the Scottish bakery.—*Baker Perkins, Saginaw, Mich.*

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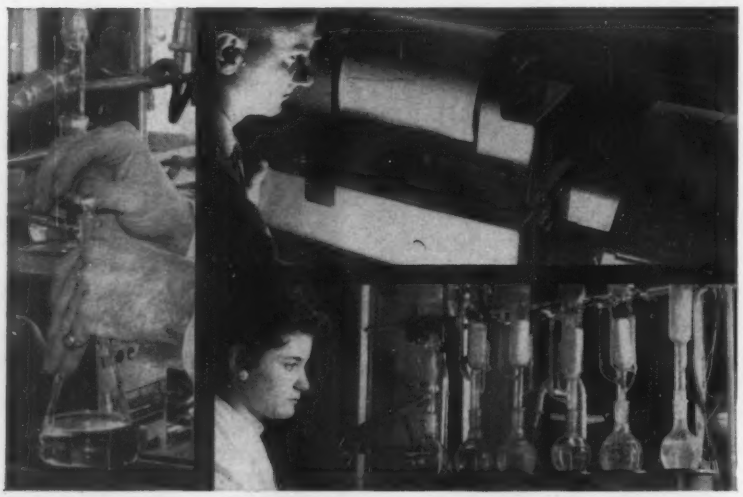

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Advances in Technology

for citrate salts, flavonoids, and pectin are considerably less, while those for ascorbic acid and peel oil are practically negligible.—*Food Tech.*, 423-428, Sept., 1960.

Soybean, Cottonseed Extraction by 4 Solvents

Various solvents have been studied and used commercially for the solvent extraction of vegetable oils. Benzene, ethyl alcohol, and the petroleum fraction, hexane, are most widely used.

Studies were made on the rate of extraction of soybeans and cottonseed with pure hexane, pure benzene, and two varieties of commercial hexane commonly used in oil extraction.

Extraction of soybeans by pure hexane was slower than by the other two hexanes. During the first 60 min., extraction by benzene was more rapid than by the other solvents. At the end of 80 min., extraction by benzene was only slightly more than by pure hexane and much less than by commercial hexanes. Extraction rate of cottonseed was similar for the four solvents.

On the basis of free fatty acids and color, the best quality soybean oil was extracted by pure hexane. The benzene-extracted oil had the lowest neutral oil content and highest color. Pure hexane produced cottonseed oil exceeded in color only by that extracted by benzene. Best colored oil was produced by high purity hexane. There is little choice between the two commercial hexanes for soybean extraction. A lighter colored cottonseed oil was produced by the high-purity hexane.

These results do not necessarily apply to extraction at temperatures other than 135-140F., nor to extraction carried out under different conditions.—*Jour. Amer. Oil Chemists*, 458-459, Sept., 1960.

Lab Assessment of Meat Spoilage

A review has been made of main laboratory methods developed in the past for assessing objectively the degree of freshness or extent of spoilage in meat. Where the diagnostic ability of a method was found conflicting, experiments were carried out under conditions in which such a method would be used,

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Yet Tora Food is low in cost. The combination makes it worth careful attention—especially since competitive advantages are more and more important.

The most important thing is to let us send you a complimentary sample for your own tests. In the meantime, here are a few relevant points about Red Star's Tora Food:

- Protein content is guaranteed to be more than 50%.
- This protein contains all the essential amino acids, including 6.7% of Lysine.
- Sodium content is 0.0015%.
- Tora Food itself has a bland flavor, with no bitterness. In general, it intensifies flavor.
- It is a rich source of vitamin B complex.
- Torula is a primary product, specially grown for food under rigidly controlled conditions.
- It is excellent as a carrier of flavors.
- Even in the smaller quantities, the cost is substantially lower than Brewer's yeast.

Present uses for Tora Food include baby foods, snack foods, crackers, cookies, cereals, breads, butter, dietary foods, seasonings.

Actually, we don't yet know all the possible uses—new ones are coming up every week. One of the best may be in one of your products, so how about sending in the coupon now, while it's handy. There's absolutely no obligation, of course.

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Hot bread cools off on Koroseal

FRESH-FROM-THE-OVEN BREAD, still hot from baking at 450 degrees, cools off as it travels by conveyor to wrapping tables. The conveyor belts previously used were made of canvas. But oily film clinging to the warm loaves stained and darkened canvas, made it almost impossible to clean, finally wore it out.

Then B.F.Goodrich introduced a new, improved belt for food handling —a belt made of Koroseal flexible material. Koroseal defies the things that ruin other conveyor belts—oil, grease, animal fats, most acids. It resists cracking and peeling, never gets soft and sticky. Koroseal doesn't absorb odors from food, has no odor or taste itself to transfer to food.

The bakery owner liked what he heard about Koroseal, decided to give it a try. That was April, 1954. Today, the same belt is still going strong, has already outlasted the life of two canvas belts.

Food particles and oil can't grind or soak into Koroseal's smooth, polished surface. That's why it can be thoroughly cleaned in just a fraction of the time it took to scour the old belts. Even scuff marks from banging pans wipe right off with a damp cloth.

B.F.Goodrich was the first company in the rubber industry to have its conveyor belts found suitable by the Food and Drug Administration for safe food handling under the new Food Additives amendment. For more information, call a BFG distributor, or write *B.F. Goodrich Industrial Products Co., Dept. M-928, Akron 18, Ohio.*

Koroseal—T. M. Reg. U. S. Pat. Off.

B.F.Goodrich

CONVEYOR BELTS

e.g., routine quality control.

Conclusions: The methods based on meat property changes, i.e., physical, chemical, or biochemical and microbiological, are insufficiently discriminating to replace sensory assessment.

The total volatile base and the biochemical oxygen-demand tests are suitable for providing confirmatory evidence of advanced decomposition. The pH of the meat is useful as a guide to its keeping quality. But in this case the result can only be interpreted with reasonable confidence if the condition of the animal immediately prior to slaughtering is known, since this determines largely the post mortem pH value.—*Food Manufacture*, 386-389, Sept., 1960.

Cold Water Dessert Powder

A new composition for preparing cold water gels that is not affected by mineral content of water used is the object of a recent invention.

Composition comprises a relatively high viscosity carboxymethyl alginate, a salt, a weak acid, and dessert grade sugar. Typical example is: Sodium carboxymethyl alginate, 5g., dicalcium phosphate, 1g., fumaric acid, 2g., sugar, 77g. Above formula when dry blended, then stirred into 2 cups tap water, gels in refrigerator in 30 min., at room temperature in 60 min.—U. S. Patent 2,925,343, Feb. 16, 1960.

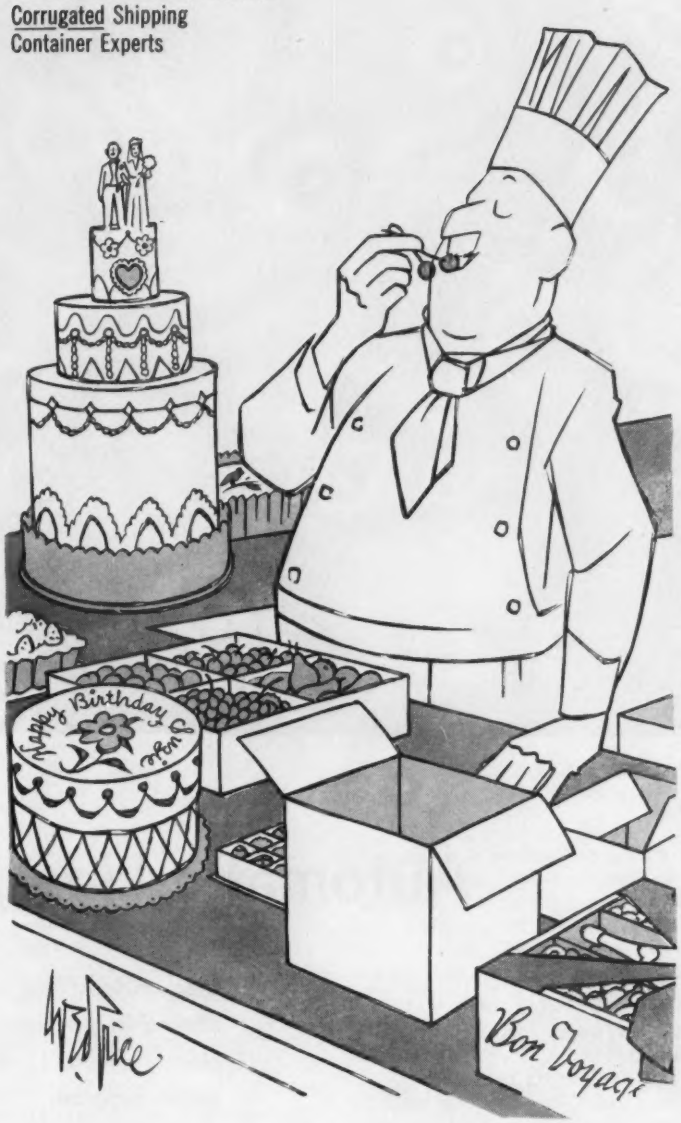
Acid Effect on Meat Curing Tested

It has been claimed that fresh meats of low pH value and low electrical resistance are more easily permeable to brine, and that it is therefore advisable to select, treat and store meats for curing so that they have an acid pH.

To test these suppositions, pork loins kept at 2 to 6C (33.6 to 42.8F.) were chosen. Cylinders weighing 122 to 200 gm. (average 158 gm.) were removed from them with a steel tube cutter.

In the 102 samples tested, no close correlation between the pH value of the meat and the speed of salt penetration into them could be established. The samples had a pH of 5.4 to 6.3 in 87% of them, and none had a pH of 6.8 to 7.0. — *Jour. of the Science of Food and Agric.*, 377-380, July, 1960.

Another in a series of Hoerner Corrugated Shipping Container Experts



THIS IS THE HOERNER SPECIALIST FOR PACKAGING TASTY THINGS

If your tasty things need a tougher, more tasteful container, call Hoerner. Packaging engineers will create a carton to save you money in space, time and labor. And Hoerner artists will add a dash of design. Let Hoerner experts cook up a tough, spicy carton for your beautiful and tasty things.

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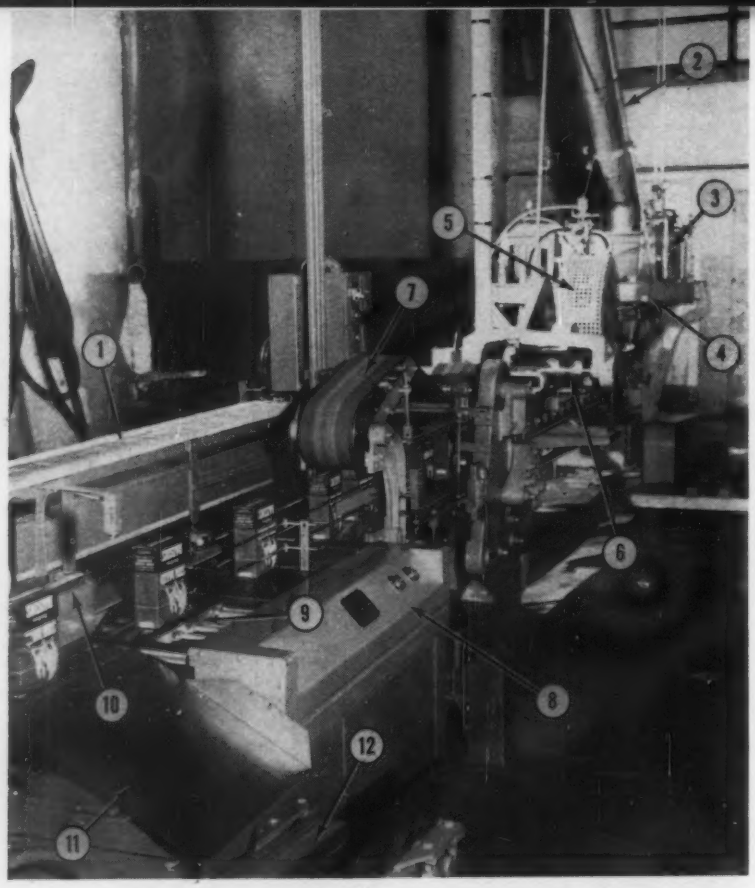


NEW LINE'S OPERATION starts when carton shells (1) move to former and bottom gluer. Feed (2) carries into volumetric-fill turret (3), adjusted by servo-motor (4). Press (5) compacts raisins below box's score-lines prior to top-gluing (6). Filled boxes pass under compression section (7), onto electronic scale assembly (8), and over weigh-platform (9). Misfilled cartons are picked up by rejector (10), carried down chute (11), and onto conveyor (12) for manual check-weighing.

Automatic Line Speeds Sticky

Mechanized filling, checkweighing units accelerate raisin package operation at West Coast plant. New line's just part of firm's total modernization program

PACKAGING LINE EFFICIENCY is on the upswing at Sun-Maid Raisin Growers, Inc., as a result of an intensive, forward-looking systems evaluation program.

Prime example: Not long ago, it seemed improbable that raisin packaging could be automated. In fact, because of product's physical characteristics, further mechanization of even a unit operation became a significant engineering project.

Today, despite a general attitude of unwitting resignation to a seemingly insurmountable problem, Sun-Maid engineers have produced a 15-oz. raisin packaging line that:

- **Boosts productivity by 25%.**
- **Cuts manhours by 33⅓%.**
- **Reduces package overfill.**

One of the first to attack the problem of raisin packaging, Sun-Maid initially employed an outside engineering firm to evaluate this line, as well as other departments. Results revealed a number of obsolete methods and machines.

Created was a new industrial engineering department which corroborated findings of the first evaluation—that better efficiency could be achieved if the lines were more highly mechanized, automated if possible.

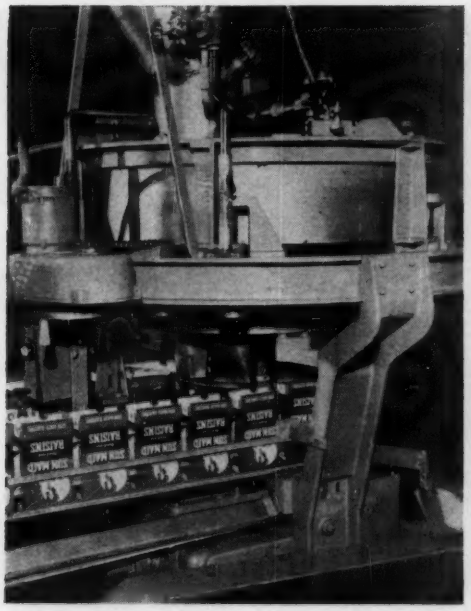
JAMES P. VOLLER
Chief Engineer, Sun-Maid Raisin Growers, Inc., Fresno, Calif.

Tackle Tough Product

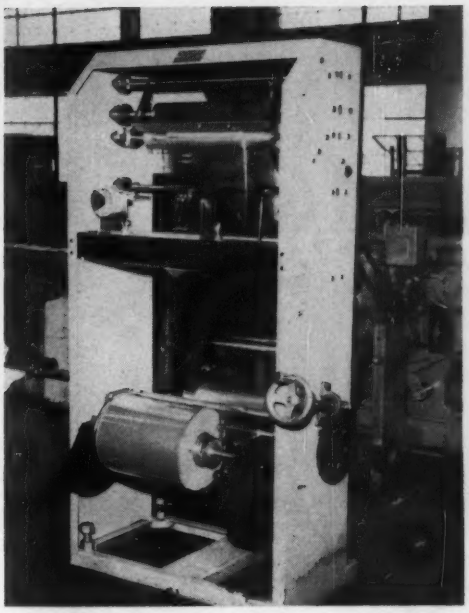
On the 15-oz. line, accurate filling was a hurdle because raisins are sticky and tend to bridge in a filling operation. Volumetric filling, previously in use, was undependable because product varies in bulk density. Moreover, relatively expensive product dictated packaging at highest speed for heavy production volume. Accumulated losses of even a fraction of an ounce per package cut deeply into profits.

Following project points were outlined:

Filling. Filler must be automatically regulated by a checkweigher. If possible, it should be a type of controller which would



SERVO-UNIT, controlled by electronic scale, regulates quantity filled in each carton by adjusting telescoping pockets.



AUTOMATIC SPLICER has one feed web and a standby web. When primary roll is depleted, standby web is automatically spliced to its trailing edge, allowing uninterrupted feeding.

Product Packaging

make corrections in proportion to the difference between its set average of operation to the average build-up by cartons passing over the scale. Bulk density variations make this an imperative requirement.

Quality Control. All packages must be up to weight or over. No tolerance should be allowed for underweight fill.

Machines. Units must be automatic, high-speed. In addition, they must reduce existing man-hours, maintenance cost, and require a minimum of floor-space.

Line Efficiency. Improved efficiency must retire capital investment within a maximum 3-yr. period.

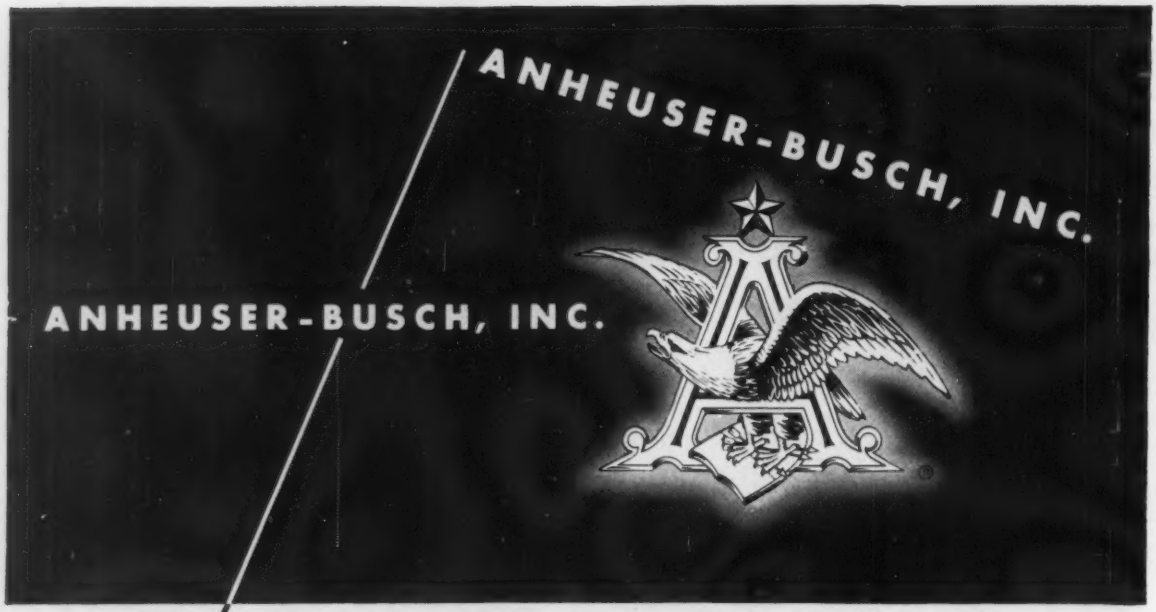
Heart of the new line is a Model 601-D "Neverstop" volumetric filler (FMC Corp., Stokes & Smith Div.) operating in conjunction with a high-speed FMC Electronic Checkweigher, which rejects under or overweight cartons.

Checkweigher inspects every carton, then measures and stores the proportional amount of deviation from a fixed average in an electronic storage circuit. Carton weight average is regulated by this storage circuit, which may be preset to a narrow or broad base. Average is never lost, yet it is constantly changing as additional packages pass over the scale. It is translated into filling corrections by automatically actuating the servo-motor on the Neverstop filler. Servo-motor increases or decreases small quantities by adjusting the volume of filling pockets.

Operating at 150-160 packages/min., this filling method is based on mechanically measuring volumes of product by means of adjustable, telescoping pockets arranged at the edge of a revolving filling head. A machine hopper, equipped for controlled pressure, fills each pocket with the exact amount of product required for each carton. At discharge point pockets are fog-sprayed (water) to obviate product bridging. As the filling head revolves, the empty bottom-sealed cartons move continuously into place beneath the pockets which automatically discharge the measured product.

Another unit which mechanizes replacing the cellophane overwrap web is the B.A.M. Automatic Splicer. Manufactured by Butler Automatic Machine, Inc., Cambridge, Mass., this unit becomes an integral part of the Model 57 Battlecreek Wrapping Machine. Requiring no motor, splicer is driven by a sprocket-chain connected to the machine.

Unattended, the unit automatically splices in registration without stopping the wrapping machine. Only manual requirement is to replace the additional standby web in the unit, trim it at the proper place on the printed panel, and clamp into place. When the web feeding to the wrapping machine is depleted, the unit automatically splices the standby web to its trailing edge, and wrapping continues uninterrupted. (End)



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A-B® Corn Syrup Unmixed—Intermediate Conversion

BUD-SWEET* Corn Syrup Unmixed—High Conversion

Now, as a result of our continuing product research, we are announcing an addition to our line of corn syrups:

HI-FI* Corn Syrup Unmixed—Extra High Conversion

Maximum sweetness coupled with low viscosity make HI-FI corn syrup an ideal ingredient for the food processor.

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ANHEUSER-BUSCH, INC.
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Will Chains Do More Manufacturing?

Chain-Owned plants expanding at faster clip than food makers . . . Poses tickler for your forward planning program

PRIVATE LABELS will be the "unbidden guest" when food execs gather for their annual GMA meeting this month. Although last year's session side-stepped the issue, these recent developments indicate that the PL problem is still very much with the industry:

► **Annual Consolidated Consumer Analysis, which checks consumer preferences in 21 markets, showed retailers and wholesalers making headway in the battle of the brands.** Among four fast-moving items (frozen vegetables, frozen orange juice, canned fruit cocktail, canned peas), PLs grabbed 4 first-place choices, 15 second-place rankings, and 18 third-place preferences.

► **Almost one-fifth (19%) of retail buyers polled by Selling Research said they plan to increase their PL lines.** Asked to pinpoint where the expansion will occur, 17% of the merchandisers fingered frozen vegetables and fruits, 13% cited dairy items, and 8% listed instant coffee, salad dressing, frozen foods, potato chips, and peanut butter. And some 33% said they'll cut back on national brands to open up shelf space for their own labels.

► **PLs continue to carve out bigger share-of-market slices in specific product areas.** Market Research Corp. of America, which keeps tabs on food purchases of 6,000 families, reports that in the past 5 yr. PLs hefted their market-share of instant coffee from 12% to 32%; frozen meat pies, 26% to 39%; margarine, 58% to 62%; canned pineapple, 38% to 44%; frozen orange juice, 65% to 76%; and spaghetti sauce, 23% to 32%.

► **Stronger ad support by retailers behind their own brands.** Regional editions now offered by leading consumer magazines (Life, Look, SatEvePost) give chains a new merchandising medium they were unable to exploit before because of their less-than-national scope.

All of this tends to bear out the prediction made by food chiefs taking part in FE's annual outlook poll. At the time, 72% expected rougher competition from PLs in '60 (see FE Jan. '60, p. 37).

Who Packs It?

With PLs gaining momentum, the question of who will process future volume looms more critical in the forward planning area. A good chunk of it, of course, is put up by custom packers (who don't want to build a brand franchise) and national advertisers (to main-

Table I. Where Chains May Expand Further

PRODUCT AREA	SALES Smallest Integrator (Mill. $)	NUMBER OF TOP 20 CHAINS ACTUAL Integrators	POTENTIAL Integrators	RELATIVE Integration	SHARE-OF-FIELD Held by Top 8 Food Firms
Poultry dressing	30.9	2	20	10	23
Baking	34.9	19	20	95	32
Butter	50.1	4	20	20	19
Coffee	53.3	15	20	75	59
Ice Cream	58.7	4	20	20	41
Meat packing	68.9	7	20	35	48
Jams, jellies	137.1	6	18	33	36
Canned foods	139.5	4	18	22	38
Peanut butter	226.3	5	13	38	n.a.
Cheese	280.3	2	12	17	83
Salad dressing	291.8	6	12	50	71
Evaporated milk	306.5	5	12	42	58
Biscuits, crackers	736.1	3	5	60	73
Desserts	817.6	3	4	75	89
Cereals	1,989.3	2	2	100	89
Margarine	1,083.3	1	3	33	64

Sources: Agricultural Experiment Station, Univ. of Wisconsin; Senate Subcommittee on Anti-Trust and Monopoly.

RATIO OF INTEGRATION, shown in 4th column, is arrived at by dividing number of potential integrators into number of chains who have actually gone into manufacturinging. Last column on the right shows the share of total shipments accounted for by the 8 biggest food manufacturers in the product field. If you line up, in order of ascending importance, the product fields having the highest ratio of integration and the highest concentration by manufacturers, you will find a pretty close correlation between the two. This indicates that product fields where a few firms dominate the output are the most inviting prospects for chain manufacturing.

THAYER C. TAYLOR
Associate Editor, "Food Engineering"

Table II. Where Chain-Owned Food Plants Set Pace

PRODUCT AREA	SHIPMENTS (Millions) 1958		RATE OF INCREASE 1954-58	
	Chains	Food Mfrs.	Chains	Food Mfrs.
Meat Packing	$149.0	$12,012.4	58%	17%
Prepared Meats	78.1	1,990.6	104	29
Poultry Dressing	8.6	1,712.9	91	28
Dairy	55.6	3,021.3	58	13
Concentrated Milk	57.2	773.5	22	10
Fluid Milk	95.9	6,212.5	67	28
Canned, Frozen	99.1	4,966.0	29	34
Bread	368.5	4,096.2	31	22
Confectionery	43.2	1,840.6	39	13
Coffee	234.4	1,817.9	−26	−3
Miscellaneous	105.4	4,444.0	23	19
TOTAL	1,295.0	42,887.9	21	20
TOTAL (less coffee)	1,060.6	41,070.9	41	21

Sources: FTC, Census Bureau

tain operating capacity as well as "keep the other guy from getting the business").

Obviously, if the chains decide to process a greater part of their PL volume, this will have serious repercussions on food manufacturers (see Table I). For one thing, the relationship between seller and buyer will shift to a more competitive plane where pricing will figure more importantly. Also, the need for new plants, as well as the operation of present facilities, will have to be reevaluated. In at least one area this is already a critical poser—A&P, for example, is now the country's second biggest baker of bread and related products, topped only by Continental Baking.

Probes Illuminate

New government data, turned up by FTC's economic food inquiry and Sen. Kefauver's bread probe, spotlights how far chains have already penetrated into manufacturing. And a forthcoming analysis of the food industry, to be published next month, suggests that this integration may accelerate in the next few years.

You get a picture of the extent of chain manufacturing by comparing FTC's report with the '58 Census of Manufacturers (see table). Among the 11 product categories covered in both sources, food manufacturers and chain-owned plants fared pretty evenly in the '54-'58 period — chain-packed volume was up 21%, food makers' 20%.

But when you eliminate coffee roasting, the picture looks much less comforting. For the totals of the remaining 10 categories show that while food makers increased their output 22%, the chains bulled ahead almost twice as fast with 41% upsurge (see Table II).

And except for canned and frozen foods, chains scored bigger gains in each product category. For example, they pushed up meat packing output 58% vs. 17% for meat packers, their confectionery volume 39% vs. 13% for candy makers, and their fluid milk output 67% vs. 28% for milk producers.

True, the chains' own output is still a dribble compared to what is turned out by food makers. Even in '58, the $149-million of meat packing products processed by chains was less than 1% of the $12-billion of similar items fabricated by meat packers. However, it's worth noting that in the same year, of all the merchandise bought by the 156 biggest chains, 8.1% originated in their own plants.

Further insight into how fast chain manufacturing is growing is provided by the Kefauver bread investigation. That inquiry revealed that, between '54 and '58, the 8 biggest chains hiked shipments of their self-made baked goods 31% while the 8 biggest wholesale bakers showed a smaller 26% gain.

More Of The Same Ahead

Where chain manufacturing is headed is analyzed in a forthcoming book, "Changes In The Market Structure of Grocery Retailing, 1940-58." The authors, Willard F. Mueller (Univ. of Wisconsin) and Leon Garoian (Univ. of Oregon), feel that chain integration will be sharpest in the more highly concentrated product areas—where a few manufacturers account for a preponderant bulk of the field's volume.

Chain manufacturing is attracted to such fields, they reason, by the relatively higher profits which are the result of the difficulty of entry that faces new firms. Also, the proportionately greater advertising done by leaders in such fields creates a stronger product demand which the chains can siphon off to their own brands.

Bigness The Key?

Then, too, as FTC observed in its study, there's a strong correlation between chain size and the degree of integration. Thus the 6 biggest retail groups operate 60% of the 340 chain-owned food-making plants. And the 9 biggest turn out 89% of the volume packed in those plants.

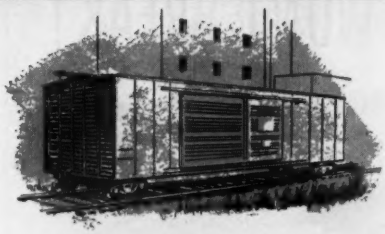
As the chains develop consumer acceptance of their own brands, Mueller and Garoian argue, they're better able to sell the output of an efficient-sized plant under their own label. As a result, they're "in the unique position of being able to overcome the main barrier—product differentiation—which makes entry difficult for other firms."

To get a fix on the future direction of chain manufacturing, the authors devised an integration index of the "susceptibility" of specific product areas to this trend. Briefly, it works this way:

The smallest chain to have integrated into a product field in '57 serves as the base, and all bigger outfits become "potential integrators." Then, by dividing this "potential" into the number of chains among the top 20 that actually integrated, the resultant is "value of relative integration."

Applied to baking, for example, the theory shows a "value" of 95%. The smallest chain that did its own baking in '57 had sales of $34.9 million. All of the top 20 chains were bigger in size, thus became "potential integrators." Dividing 20 into the number of chains that actually took the step (19) results in a figure of 95%. (End)

DOW | FUMIGANTS



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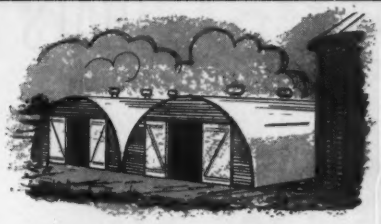

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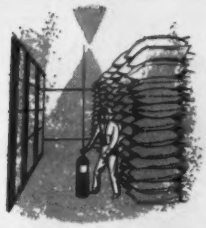

SPACE FUMIGATION

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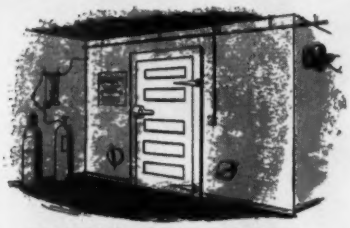

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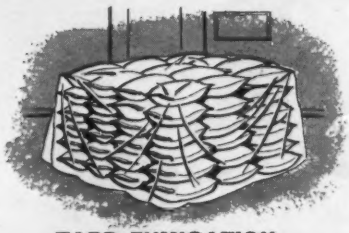

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Used according to directions, these Dow Fumigants will impart no residual odors or taste to grains or fully prepared food products and they will not affect milling qualities. Whatever your fumigation problems, call the nearest Dow sales office, or write for full information to: THE DOW CHEMICAL COMPANY, Agricultural Chemicals Sales Department **223KE10,** Midland, Michigan.

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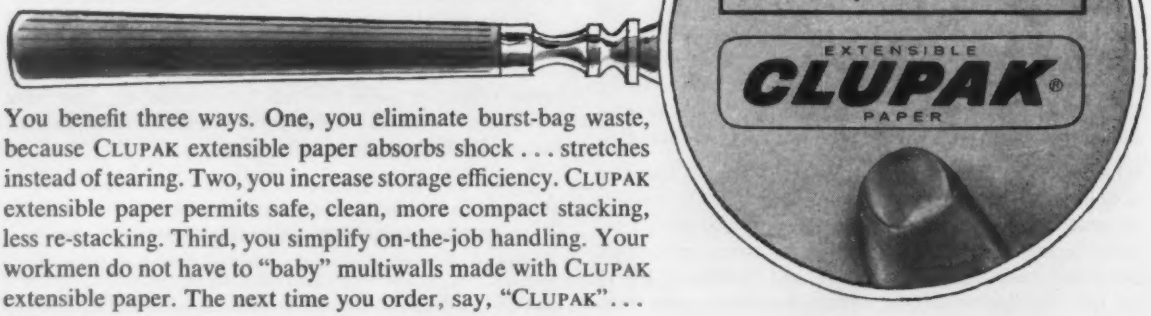

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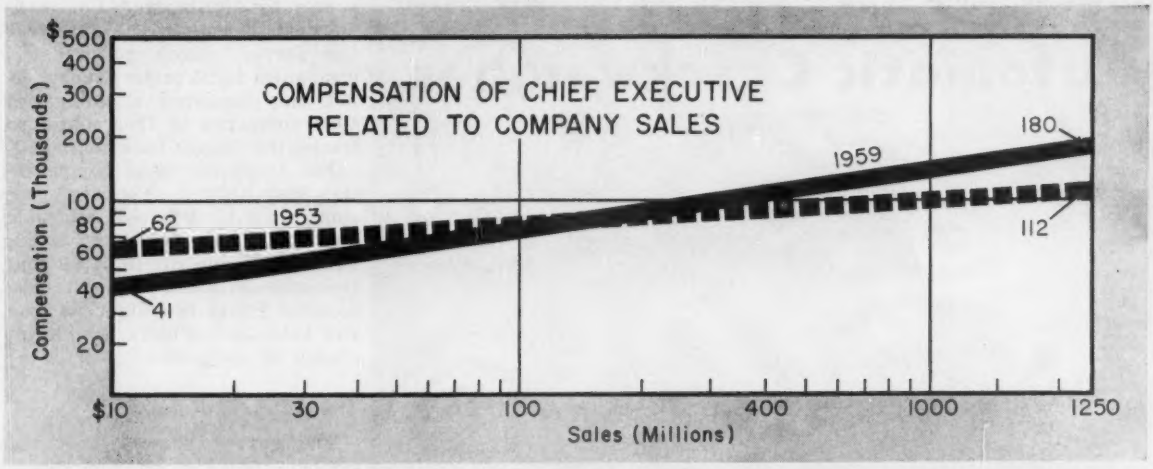


MANAGEMENT SALARIES in the food industry increase faster as company size gets bigger. The sharper rise in the line of best fit for 1959 indicates the effect that mergers, acquisitions, and company growth have on top executive pay.

Food Executives Boost Pay 13%

Outpace all-industry leaders second year in row. But turnover, low net keep food salaries below general level

CHIEF EXECUTIVES in the food industry last year increased their compensation at a faster rate than all-industry leaders for the second year in a row.

In 1958, a recession year, average pay of all-industry top executives dipped 1.8%. But food chiefs, benefiting from higher company sales and profits, upped their compensation 4.8%.

In 1959, a recovery year, the all-industry average sales increased 9%, compensation rose 8%. Although food industry sales rose only 2%, food executives' compensation improved 13%.

Despite this improvement, food executives still trail the all-industry average. Where the all-industry top executive received an average $102,000 last year, typical food company head pulled down $96,000.

These are the key findings of the sixth annual compensation

J. McLAIN STEWART
McKinsey & Co., international management consultant firm, New York City

How Food Industry Compares With Other Fields

INDUSTRY	EXECUTIVE PAY		SALES		PROFITS	
	'58–'59	'53–'59	'58–'59	'53–'59	'58–'59	'53–'59
FOOD	**13%**	**13%**	**2%**	**56%**	**20%**	**19%**
Air Transport	9	30	18	98	53	21
Aircraft and Missiles	(2)	23	(2)	34	(33)	(18)
Automotive	27	2	25	33	95	37
Building Materials	10	24	5	62	29	84
Business Machines	12	41	12	132	9	172
Chemicals	12	13	12	54	14	71
Consumer Durables (Except Auto)	8	(2)	16	30	62	69
Dept Stores, Gen'l Mdse. Chains	6	10	9	24	10	37
Electrical Equipment	(1)	11	20	48	38	107
Electronics	24	29	1	74	30	11
Food and Drug Chains	2	10	5	54	6	118
Industrial Metal Products	6	1	9	44	8	42
Large Diversified Companies	7	46	18	103	26	43
Machinery (Except Electrical)	10	11	9	15	33	23
Nonferrous Metals	5	26	10	26	22	21
Paper	6	23	15	112	21	34
Petroleum	0.3	26	7	47	9	19
Public Utilities	2	28	9	60	8	65
Railroads	4	18	2	(7)	(15)	(37)
Rubber	0.4	7	16	61	26	33
Soap, Cosmetics, Pharmaceuticals	2	16	8	90	11	118
Steel	7	7	11	12	4	11
Textiles	8	(10)	19	38	103	24
Tobacco	(1)	25	6	43	8	95
All Industries	8%	16%	9%	43%	21%	31%

Note: Parentheses indicate negative change.

EXACT WEIGHT'S New Automatic Checkweigher

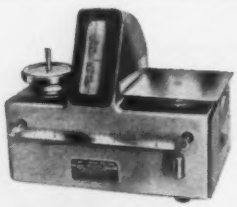
SELECTROL®

MODEL 1206 with horizontal (side by side) rejection for tall products such as cans, cereal cartons, etc.

This new Selectrol checkweigher automatically weighs, classifies and sorts at speeds up to 120 items per minute, depending on size and weight of object. Rejection accuracy is 2/10 of one percent of the weight of the commodity at maximum speed.

New Selectrol features include compact size that requires minimum space in a conveyor line . . . and simplified circuits. Electrical controls are mounted above the conveyor line for easy accessibility.

Selectrols are made by Exact Weight, a leading manufacturer of job-engineered scales for 45 years with experience gained through hundreds of checkweighing installations during the past 18 years. For complete details, write for Bulletin 3377.



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Sales and Service Coast to Coast

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Find us in your local "Yellow Pages"

BETTER QUALITY CONTROL . . . BETTER COST CONTROL

survey by McKinsey & Co., management consultants. This year the survey, which covered 605 companies in 25 major industries, not only analyzed standings in 1959 compared to 1958, but also traced the figures back to 1953.

For study purposes, compensation was defined as salary, pensions, and deferred accruals awarded during the year. It did not include contributions to pension schemes, stock option awards, or other fringe benefits. The food and beverage industry sample included 43 companies.

The 1958-59 Record

The survey showed that the compensation gain by chief executives in all-industry in 1959—8%—was the largest since the surveys began in 1953. The sharp rise paralleled a 9% gain in sales and a 21% increase in profits.

Food industry sales increased only 2%, a relatively unfavorable comparison with the all-industry sales rise of 9%. On the other hand, average food industry profits were up 20% vs. the all-industries average of 21%. This, of course, is an indicator of leverage which exists in this industry when companies manage to bring sales over existing breakeven points.

In response to the rise in profits, the average compensation of food company chief executive officers increased 13% as against 8% for the all-industry sample. Profits, then, were a very influential factor in food industry chief officer compensation.

Another important factor influencing chief executive compensation, of course, is company size. The president of a hypothetical $30 million/yr. company (see chart) would get $55,000 a year; the chief of a $100 million/yr. outfit, $76,000; and the top man in a $400 million/yr. firm, around $110,000 a year.

Generally in U. S. industry the top man gets top pay and other executives' compensation clusters around his in descending order. The relative position of the second, third, and fourth rank executives in the food industry is quite close to the all-industry average.

The Number 2, 3, and 4 men got respectively 73%, 58%, and 51% of the top executive's salary. The all-industry ratios of the second, third, and fourth men to their top executives are 72%, 58%, and 54%. Thus, only the fourth man in the food industry seems to lag

(Continued on p. 111)

fur by Revillon...

...flavor by Webb

Today's consumer
is quality conscious
— at all price levels.
That's why you have an added edge
when you use food flavors by Webb
— outstanding for trueness,
delicacy, uniformity and strength.
Specialists in standard flavors and
custom flavor development
for over fifty years.
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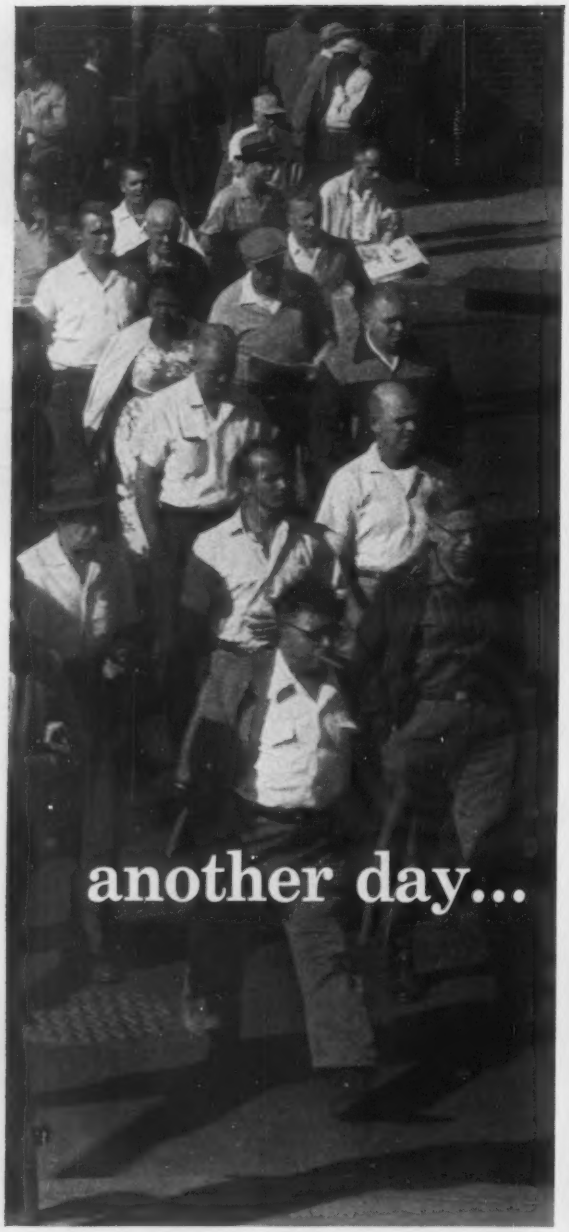
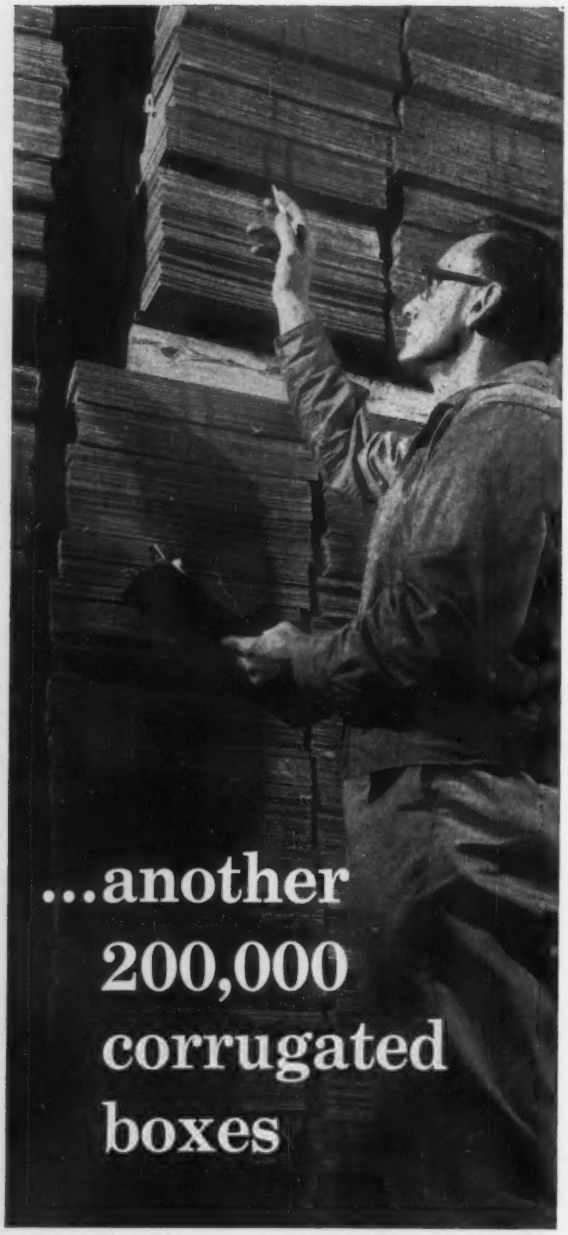




In an eight-hour shift, Hinde & Dauch's Chicago plant (just one of seventeen) manufactures as many as 200,000 standard regular slotted boxes. This *volume capacity* is important to H & D customers. It assures them of a virtually limitless supply, a highly reliable source of the boxes they need for sustained production. After all, isn't this the kind of supplier support you'll be demanding during the competitive months to come?

Hinde & Dauch Division

West Virginia Pulp and Paper

HINDE & DAUCH DIVISION, WEST VIRGINIA PULP AND PAPER, SANDUSKY, OHIO • 17 PLANTS • 42 SALES OFFICES

behind his fellows in the all-industry group.

The 1953-59 Record

This survey was the first in which enough of a backlog of data was available for useful long-term comparisons. Between 1953 and 1959, the average company boosted its sales 43%, profits 30%, and chief executive compensation 16%.

An interesting point that came out of the 6-yr. study, however, is that new chief executives were chosen by a little over half of the companies checked. On the whole, these new top executives were paid less than their immediate predecessors. Thus, chief executives who stayed on the job during the entire 6-yr. span reported a 24% rise in pay—which is half again the increase of the total sample.

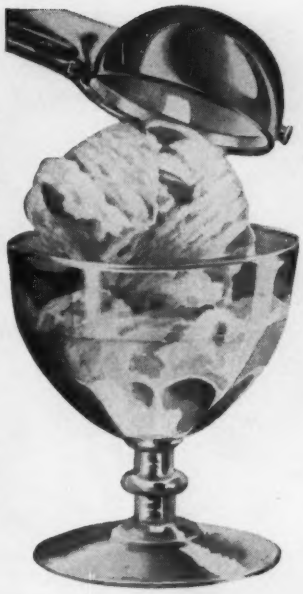
Average compensation of the chief executive in the 43 food companies surveyed was 13% higher in 1959 than 1953. At first this seems to be a paradox. Because food industry executives increased their compensation 13% between 1958 and 1959, it seems improbable that they would have increased their compensation by only the same degree between 1953 and 1959.

However, 14 new top executives came into the food industry in recent years, probably at substantially lower pay than their predecessors. Also, a few companies either cut or altered top-executive compensation as defined here.

In any event, the average food industry top executive is still behind the pack and has even lost some ground. The all-industry group rose 16% in compensation; the average food company executive improved by only 13%. One encouraging sign is the fact that in the past two years food industry executives seem to be catching up fast.

And, finally, another change that the survey may be uncovering shows up in the relative slope of the 1953 and 1959 lines of best fit for compensation versus sales in the food industry (see chart on page 107).

Through a combination of merger, acquisition, and growth, food-beverage companies are getting bigger. That is why the 1959 line on the chart rises higher than the 1953 trend line. And it also means size is becoming a more important factor in food industry top executive pay. (End)



YOUR DISH OF ICE CREAM . . . AND

TRADE FRICK MARK

REFRIGERATION

What's *your* favorite . . . chocolate, vanilla, strawberry or butter pecan?

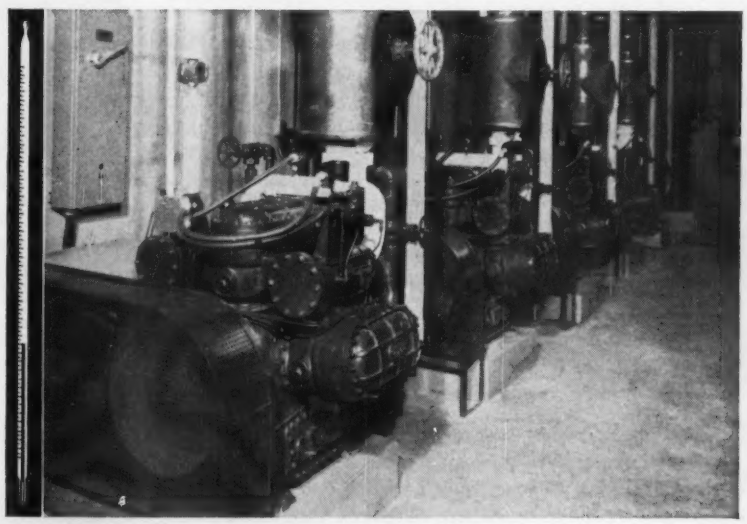
Whatever it is, the freshness and flavor of ice cream are perfected and preserved by refrigeration . . . from the time the fruit is picked to the time the plate is served.

The Frick Company, pioneers in commercial refrigeration for *all* industries, supplies equipment to ice cream manufacturers throughout the world.

The Detroit Creamery Company, a Division of National Dairies, is only one example of a Frick installation.

Whatever your products . . . whatever your refrigeration problems . . . Frick sales engineers will be happy to discuss them with you. No obligation at all.

FRICK COMPANY • **Waynesboro, Pennsylvania**



• Here are four 9-cylinder and one 6-cylinder Frick compressors installed at the Detroit Creamery that produces all kinds of dairy products . . . ice cream, milk, cottage cheese and dry milk products.

106-Acre

BERGEN MALL

Shopping Center

One of world's largest. Has central heating plant; incinerator operation generating part of steam . . . 13 individual cooling towers . . . air-curtains to avoid doors in main buildings . . . 8,600 car parking.

Owner — ALSTORES REALTY CORP.

Architects-Engineers — JOHN GRAHAM AND COMPANY, NEW YORK & SEATTLE

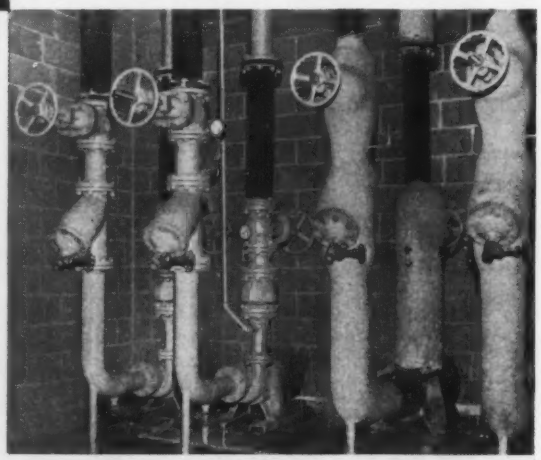
Mechanical Contractor — FRANK A. MCBRIDE CO., PATERSON, N. J.

Low-cost, trouble-free control of the complex piping system obtained with JENKINS VALVES

250,000 people a week come to this huge Northern New Jersey shopping center to satisfy most of life's needs other than sleep. Its shops, banks, offices, theaters, restaurants and varied personal services occupy 920,000 square feet of buildings.

The plumbing, heating, air conditioning, fire protection and sanitation facilities of this city-like project are as hard-working as they are complex. Valves with extra-stamina were needed for control of the piping system. Every possible protection against troubles and the high costs of valve maintenance and replacement was demanded. It was obtained with the specification so often written for tough, critical jobs . . . *"valves to be* JENKINS".

Especially since they cost no more, it is surely worthwhile to insist on Jenkins Valves for your valve jobs. Jenkins Bros., 100 Park Avenue, New York 17.



Valves on air conditioning system pumps.

JENKINS

LOOK FOR THE JENKINS DIAMOND

VALVES

JENKINS SINCE 1864 Jenkins Bros

SOLD THROUGH LEADING DISTRIBUTORS EVERYWHERE

TRADE TASTYKAKE BULLETIN
National Trend Is Toward Lighter Desserts
CALORIC CONSCIOUS BUYERS DEMAND LIGHT FOODS THAT ARE HIGH IN NUTRITION
STATEN ISLAND FOOD FARM CHAIN SHOWS GOOD GROWTH IN TEN YEARS
CAKE.... a nutritious food for a balanced diet

TWO-LEVEL information program: Trade 'Bulletin' that profit-cues retailers, booklets that set public straight on cake calories.

'Print Power' Puts Small Firm Ahead

Unable to match big-ticket competitors, local baker solidifies dealer support with fact-packed newsletter. Operating tips pay off with strong trade loyalty

BUILDING stronger dealer loyalty through a modest 4-page newsletter has enabled Tasty Baking Co., Philadelphia, to hold its own against big-ticket competition. As a result, the company has expanded its supremacy in the small-size cake field throughout an 8-state area in the East.

The need for firmed-up trade relations was intensified by Tasty's steady expansion beyond its local market where it had enjoyed brand leadership. The big problem: Win over dealers in new territories who were unaware of the company's quality reputation.

"Trying to match the merchandising outlays of national-scale bakers was impossible with our limited funds," concedes V. P.-Marketing C. R. Vidinghoff. "We had to make our smaller budget stretch further by establishing better communications between company and retailer."

Newsletter Does It

Tasty's dealer information program started off with a 1-page flyer ("Bulletin") in '58, has since been enlarged to a 4-page offset newsletter. A varied editorial menu—how-to stories, trend stuff, operating tips—makes each issue as appetizing as possible.

Well aware that retailers are looking to manufacturers for answers to critical operating problems, the company focuses each issue on a successful supermarket bakery department. Idea is to show dealers how others have coped with the same problem.

Backing up this how-to approach is a regular feature called "Dealer's Reminder File" — sort of "Practical Ideas" of successful retailing. Grist for this section is gathered by Franz Serdahaly, Tasty's public relations boss, during frequent field trips to supermarket outlets. He makes it a point to pick up from each store he visits something on what used to be the retailer's biggest headache and how it was cured.

General interest items are played up, too, so that the newsletter won't look like just another sales promotion piece. A recent issue, for example, discussed the trend to lighter, low-calorie desserts.

The "Bulletin" has also been a successful medium for alerting the trade to the company's new products and merchandising campaigns. Recently, the company took its first full-page ad in the SatEvePost when that magazine began offering regional editions. The ad was reprinted in the "Bulletin" to show dealers the kind of merchandising support they were receiving.

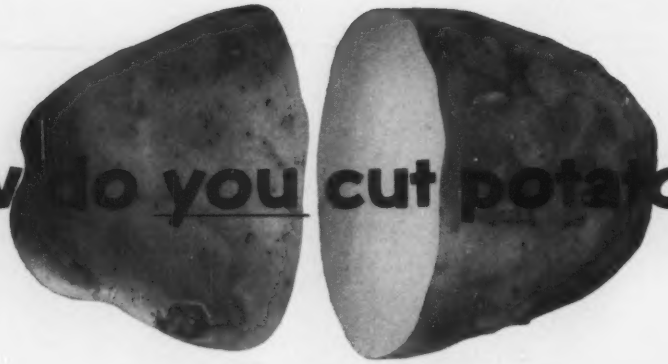
Salesmen Seek Scoops

Some 30,000 dealers who handle Tastykake get the newsletter regularly. In addition, buyers of 150 chain and wholesale groups the company hopes to influence also receive mailed copies.

Distribution is handled by the company salesmen, who also act as "reporters" for the public relations department (which puts out the paper). They feed back leads on newsworthy bakery department operations, as well as complaints which public relations can act upon.

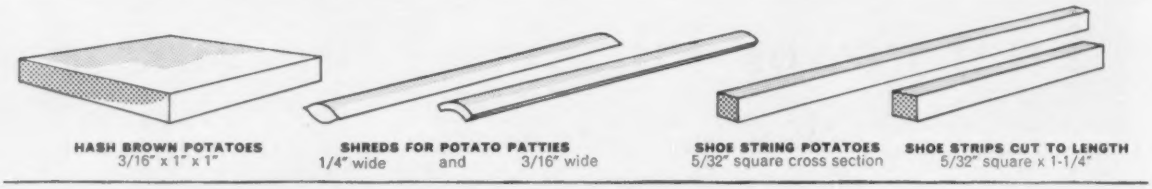
Salesmen also drop off copies at stores they hope to line up as future accounts. Feeling here is that the "Bulletin's" soft-sell approach is an effective door opener.

(FE Staff)



how do you cut potatoes ?

New potato shapes, created to *revitalize* lagging appetites, are making important sales news all along the nation's shopping fronts. Urschel machines can cut practically any shape you want. They feature precision uniformity, highest yields, lowest product loss, unusually high capacities, low maintenance, and complete product protection (product contacts only stainless steel or special non-corroding metal surfaces).

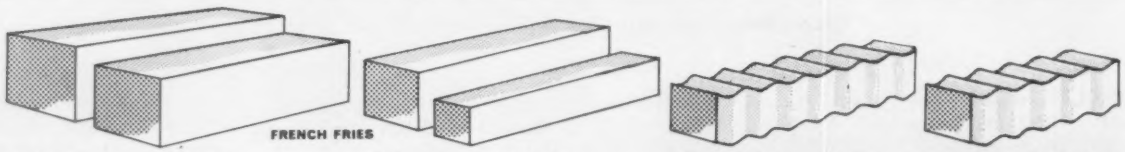


HASH BROWN POTATOES
3/16" x 1" x 1"

SHREDS FOR POTATO PATTIES
1/4" wide and 3/16" wide

SHOE STRING POTATOES
5/32" square cross section

SHOE STRIPS CUT TO LENGTH
5/32" square x 1-1/4"



FRENCH FRIES

1/2" square cross section

7/16" square cross section

3/8" square cross section

1/4" square cross section

CORRUGATED FRENCH FRIES
9/16" square cross section

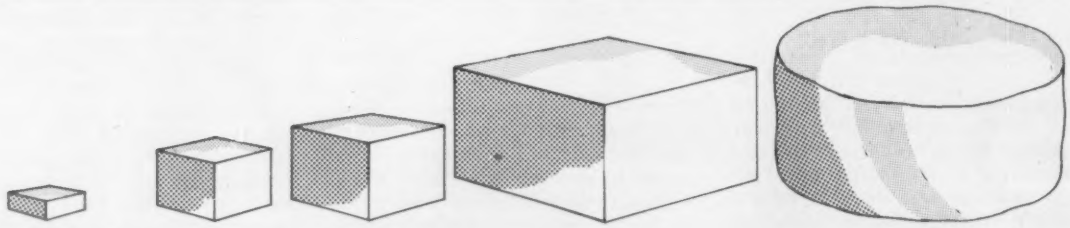
CORRUGATED FRENCH FRIES CUT TO LENGTH
approx. 1" lengths

AMERICAN FRIES
3/16" thickness

GERMAN POTATO SALAD
3/16" thickness

FLAT POTATO CHIPS
1/16" thickness

CORRUGATED POTATO CHIPS
1/16" thickness



POTATO PATTY PIECES FROM FRENCH FRY SCRAP
1/8" x 1/4" x 1/4"

SOUP CUTS
3/8" cubes

POTATO SALAD
1/2" cubes

STEW CUTS
3/4" x 1" x 1"

PRE-SLICING FOR POTATO FLAKES
3/4" thickness

Consult with our cutting specialists

URSCHEL
LABORATORIES INC.
VALPARAISO, INDIANA

Designers and manufacturers of precision, high speed cutting equipment for food products.

PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

More Extensions Granted

Synthetic Flavorings Included in Long FDA Listing

A GRACE PERIOD until March 1, 1961, has been established by the FDA for many synthetic flavoring substances and adjuncts. These substances are to be used in accordance with good manufacturing practices for the specified period.

For earlier listings on additives, readers are referred to FE Jan., p. 81; Feb., p. 19; Mar., p. 89; Apr., p. 99; May, p. 77; June, p. 85; July, p. 85; Aug., p. 75; and Sept., p. 117.

Synthetic Flavorings Getting More Time

Acetal (acetaldehyde diethylacetal).
Acetanisole (*p*-acetyl anisole, *p*-methoxy acetophenone).
Acetol acetate (1-acetoxy-2-propanone, hydroxy acetone acetate).
Acetophenone (phenyl methyl ketone).
Acetyl *N*-butyryl (hexan-2,3-dione).
Acetyl *iso*-butyryl (4-methyl-pentane-2,3-dione).
Acetyl *iso*-eugenol (*iso*-eugenol acetate, 3-methoxy-4-acetoxy-propenyl-1-benzene).
Acetylno ıyryl (undecan-2,3-dione).
Acetyl propionyl (pentane-2,3-dione).
Acetyltributyl citrate.
Acetylvaleryl (heptan-2,3-dione).
Acetylvanillin.
Adipic acid.
Allyl anthranilate.
Allyl butyrate.
Allyl caproate (2-propenyl hexanoate, allyl hexanoate).
Allyl caprylate.
Allyl cinnamate.
Allyl cyclohexyl acetate.
Allyl cyclohexyl butyrate.
Allyl cyclohexyl caproate.
Allyl cyclohexyl propionate.
Allyl cyclohexyl valerate.
Allyl-2-ethyl butyrate.
Allyl furoate.
Allyl heptylate (allyl heptoate, allyl oenanthate, allyl heptanoate).
Allyl hexadienoate (allyl sorbate).
Allyl ionone.
Allyl mercaptan.
Allyl nonate (allyl pelargonate, allyl nonylate, allyl nonanoate).
Allyl phenoxyacetate.
Allyl phenylacetate.
Allyl propionate.
Allyl *iso*-thiocyanate (mustard oil).
Allyl tiglate.
Allyl undecylate.
Allyl *iso*-valerate.
Ambrettolide (hexadecen-6-olide).
Ammonium *iso*-valerate (ammonium valerianate).
iso-Amyl acetate (amyl acetate, *β*-methyl butyl acetate).
n-Amyl alcohol (1-pentanol).
iso-Amyl alcohol.
iso-Amyl benzoate.
iso-Amyl benzyl ether.
n-Amyl butyrate.
iso-Amyl butyrate.
n-Amyl caproate.
iso-Amyl caproate.
n-Amyl caprylate (*n*-amyl octoate).
iso-Amyl caprylate (*iso*-amyl octoate).
iso-Amyl cinnamate.
Amyl cinnamic aldehyde (*α*-*n*-amyl-*β*-phenylacrolein).
α-Amyl cinnamic aldehyde (dimethyl acetal).
α-(*n*-Amyl) cinnamyl acetate.
α-Amyl cinnamyl alcohol.
α-Amyl cinnamyl formate.
α-Amyl cinnamyl *iso*-valerate.
Amyl *p*-cresyl ether (amyl *p*-cresol).
iso-Amyl ether.
n-Amyl formate.
iso-Amyl formate.
α-*iso*-Amyl furfurylacetate.
α-*iso*-Amyl furfurlacrylate.
α-*iso*-Amyl furfurylpropionate.
Amyl furoate.
Amyl heptoate (amyl oenanthate, amyl heptylate).
iso-Amyl laurate.
iso-Amyl pelargonate amyl nonylate, nonate).
iso-Amyl phenylacetate.
iso-Amyl propionate.
iso-Amyl pyruvate.
iso-Amyl salicylate (*iso*-amyl *o*-hydroxybenzoate, orchidae).
iso-Amyl *iso*-valerate.
Anisaldehyde (*p*-methoxybenzaldehyde, aubepine liquid).
Anisole (methylphenyl ether, methoxybenzene).
Aniayl acetate (*p*-methoxybenzyl acetate).
Aniayl alcohol (*p*-methoxybenzyl alcohol, anisic alcohol).
Aniayl *N*-butyrate.
Aniayl formate.
Aniayl propionate.

Benzaldehyde dimethyl acetal.
Benzaldehyde propylene glycol acetal.
Benzal glyceryl acetal.
Benzilidene methyl acetone (3-methyl-4-phenylbut-3-*en*-2-one).
Bensodihydropyrone (dihydrocoumarin).
Benzoin.
Benzophenone (diphenyl ketone, benzoylbenzene).
Benzyl acetate (benzyl ethanoate).
Benzyl acetoacetate (benzyl acetyl acetate).
Benzylacetone (benzilidene acetone, methyl styryl ketone).
Benzyl alcohol (phenyl carbinol).
Benzyl benzoate (benzyl benzene carboxylate, benzyl phenyl formate).
Benzyl butyrate (benzyl butanoate).
Benzyl *iso*-butyrate (benzyl 2-methyl propanoate).
Benzyl cinnamate (cinnamein, benzyl *β*-phenylacrylate).
Benzyl dipropyl ketone (morellone).
Benzylethyl alcohol.
Benzylethyl ether.
Benzyl *iso*-eugenol (*iso*-eugenol benzyl ether, 1-benzyloxy-2-methoxy-4-propenylbenzene).
Benzyl formate (benzyl methanoate).
Benzyl mercaptan.
Benzyl methoxyethyl acetal.
Benzyl methyl tiglate.
Benzyl phenylacetate.
Benzyl propionate (benzyl propanoate).
Benzylpropyl acetate (dimethyl benzyl carbinyl acetate).
Benzyl salicylate (benzyl *o*-hydroxybenzoate).
Benzyl *iso*-valerate (benzyl valerianate).
Borneol (bornyl alcohol, 2-hydroxy-camphane, borneocamphor).
iso-Borneol.
iso-Bornyl acetate.
Bornyl *iso*-valerate.
n-Butanol.
iso-Butanol.
Butter acids.
Butter esters.
n-Butyl acetate.
iso-Butyl acetate.
n-Butyl acetoacetate.
iso-Butyl acetoacetate.
n-Butyl anthranilate.
iso-Butyl anthranilate.
iso-Butyl benzoate.
iso-Butyl benzyl carbinol.
Butyl benzyl ether.
n-Butyl butyrate.
iso-Butyl butyrate.
iso-Butyl *iso*-butyrate.
n-Butyl *iso*-butyrate.
Butyl butyryl lactate.
n-Butyl caproate.
iso-Butyl caproate.
n-Butyl cinnamate.
iso-Butyl cinnamate.
β-(*n*-Butyl) cinnamic aldehyde.
n-Butyl decylenate.
n-Butyl formate.
iso-Butyl formate.
iso-Butyl furyl propionate.
Butyl heptylate (butyl oenanthate).
Butyl *p*-hydroxybenzoate (butyl parasept).
n-Butyl lactate.
n-Butyl laurate.
n-Butyl levulinate.
p-tert-Butyl methyl phenylacetate.
Butyl oleate.
n-Butyl phenylacetate.
iso-Butyl phenylacetate.
n-Butyl propionate.
iso-Butyl propionate.
6-*iso*-Butyl quinoline.
tert-Butyl quinoline.
iso-Butyl salicylate.
Butyl stearate.
n-Butyl stearate.
Butyl undecylenate.
Butyl valerate.
n-Butyl *iso*-valerate.
2,3-Butylene glycol acetal.
n-Butyraldehyde (butanal).
iso-Butyraldehyde (2-methyl propanal).
iso-Butyric acid (2-methyl propanoic acid).
Butyroin.

Camphene (3,3-dimethyl-2-methylenenorcamphane).
Caryophyllene.
Carvacrol (2-hydroxy-*p*-cymene, 2-methyl-5-isopropyl phenol, 2-*p*-cymenol, cymophenol).
Carveol.
Carvomenthol (hexahydrocarvacrol, tetrahydrocarveol).
Carvyl acetate.
Carvyl propionate.
Cedryl acetate.
Cinnamaldehyde ethyleneglycol acetal (cinncloval).
Cinnamic acid.
Cinnamyl acetate (3-phenyl-2-propenyl acetate, styrylacetate, *γ*-phenyl-allyl acetate).
Cinnamyl alcohol (cinnamic alcohol, styryl carbinol, 3-phenylpropen-2-ol-1).
Cinnamyl anthranilate.
Cinnamyl butyrate.
Cinnamyl *iso*-butyrate.
Cinnamyl cinnamate (styracin, phenylallyl cinnamate).
Cinnamyl formate.
Cinnamyl phenylacetate.
Cinnamyl propionate (*γ*-phenyallyl propionate, 3-phenyl-2-propenyl-propanoate).
Cinnamyl *iso*-valerate (cinnamyl valerianate).
Citraconic acid (*cis*-methyl butene dioic acid, methyl maleic acid).
Citral diethyl acetal.
Citral dimethyl acetal.
Citronellal (2,6-dimethyl-octen-2-al-8, rhodinol).
d-Citronellol (2,6-dimethyl-octene-1-ol-8).
l-Citronellol (2,6-dimethyl-octene-2-o1-8).
Citronellyl acetate (2,6-dimethyl-octen-(1 or 2) -o1-8-acetate).
Citronellyl butyrate (2,6-dimethyl-octen-(1 or 2) -o1-8-butyrate).
Citronellyl *iso*-butyrate.
Citronellyl formate (2,6-dimethyl-octen-(1 or 2) -o1-8-methanoate).
Citronellyl oxyacetaldehyde.
Citronellyl phenylacetate.
Citronellyl propionate.
Citronellyl valerate.
p-Cresol.
o-Cresyl acetate (*o*-tolyl acetate).
p-Cresyl acetate.
p-Cresyl isobutyrate.
m-Cresyl phenylacetate.
p-Cresyl phenylacetate.
m-Cresyl phenyl ether.
p-Cresyl salicylate.
Cuminal (*p*-isopropyl benzaldehyde, cuminic aldehyde).
Cuminic alcohol (cumin alcohol).
Cuminyl acetaldehyde.
Cyclamen aldehyde (methyl *p*-isopropyl phenylpropyl aldehyde, *p*-isopropyl *α*-methyl hydrocinnamic aldehyde, cyclamal).
iso-Cycleitral.
Cyclohexyl acetate.
Cyclohexyl acetic acid.
Cyclohexyl anthranilate.
Cyclohexyl *n*-butyrate.
Cyclohexyl cinnamate.
Cyclohexylethyl acetate.
Cyclohexyl formate.
Cyclohexyl methyl ether.
Cyclohexyl propionate.
Cyclohexyl *iso*-valerate (cyclohexyl valerianate).
Cyclopentanone, acetylated.
Cyclopentenyl methyl acetate.
p-Cymene (cymene, cymol).

γ-Decalactone.
δ-Decalactone.
Decanal dimethyl acetal.
Decanoic acid (capric acid, *n*-decylic acid).
n-Decanol (*n*-decyl alcohol, decanol-1, decylic alcohol, alcohol C-10).
n-2-Decanol 1 (*n*-decene-2-a1-1, *n*-1-decenaldehyde, *n*-1-decylenic aldehyde).
n-Decyl acetate (decanol acetate, acetate C-10).
iso-Decaldehyde (2,6-dimethyl octanal).
Decyl *n*-butyrate.
n-Decyl propionate.
Diallyl disulfide (thioallyl ether).

FLAVOREX

Jamaica Style

RUM FLAVOR

...puts the "YUM" in your product!

• Delight the palates of young pirates and their parents by adding Flavorex Rum Flavor to your product. Great for a *hearty accent!* Exquisitely exotic as an *extra touch of flavor!*

• Use Flavorex Rum Flavor in *baked goods, confections, puddings, eggnog mixes, ice cream,* and other foods. You'll be doubly rewarded these ways . . . perfect for your present formulas . . . helps earn consumers' preference for your product.

• Flavorex Jamaica Style Rum is a flavor concentrate of natural and synthetic esters produced in our own plant and blended by our masters of the art. Run a batch test. You'll discover that every fragrant drop adds mellow tropical sunshine to your product. Write for free sample, or place a trial order today.

Rum Flavor No. B224 . . . $12 per gallon

Better Flavors for Better Products

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302 S. CENTRAL AVE., BALTIMORE 2, MD.

Additives

Diacetyl monoxime (methyl *iso*-nitrosoethyl ketone).
Diallyl sulfide.
Dibenzyl ether.
Dibenzyl ketone.
Dibutyl butyrolactone.
Dibutyl sebacate (butyl sebacate).
Dibutyl sulfide.
Diethyl anthranilate.
Diethyl malate (ethyl malate).
Diethyl hydroquinone.
Diethyl maleate.
Diethyl malonate (malonic ester, ethyl malonate).
Diethyl sebacate.
Diethyl succinate (ethyl succinate).
Diglycol laurate (diethylene glycol monolaurate).
Dihydrocarveol (*p*-menth-8(9)-en-2-ol, 1-methyl-4-isopropenyl-cyclohexan-2-ol).
Dihydrocarveol acetate (*p*-menth-8(9)-en-2-ol-acetate, 1-methyl-4-isopropenyl-cyclohexan-2-ol-acetate).
1,4-Dimethoxybenzene (hydroquinone dimethyl ether).
Dimethyl acetophenone (2,4-dimethyl acetophenone).
Dimethyl anthranilate (2-methylanomino methyl benzoate, *N*-methyl methyl anthranilate).
Dimethyl benzyl carbinol.
2,6-Dimethyl hepten-2-al-7.
Dimethylhydroquinone.
2,6-Dimethyl octanol-8 (geraniol tetrahydride).
Dimethyl phenylethyl carbinyl acetate.
Dimethyl resorcinol.
Dimethyl succinate.
Dimethyl sulfide (methyl sulfide).
Dipropyl ketone.
Ditetrahydrofurfuryl phthalate.
Δ-Dodecalactone.
n-Dodecanal (lauric aldehyde, aldehyde C-12).
2-Dodecanal-1 (*n*-2-dodecen-1-al, *n*-1-dodecenaldehyde, *n*-1-dodecylenic aldehyde, *n*-dodecylene-2-al-1).
n-Dodecyl alcohol (dodecanol-1, lauryl alcohol, alcohol C-12).

p-Ethoxy benzaldehyde.
Ethyl abietate, purified.
Ethyl acetoacetate (acetoacetic ester).
Ethyl acrylate.
Ethyl *n*-amyl ketone (octanone-3).
Ethyl anisate.
Ethyl anthranilate.
Ethyl benzoate (ethyl benzene-carboxylate).
Ethyl benzoylacetate.
Ethyl benzyl acetoacetate.
α-Ethyl-β-butyl acrolein.
Ethyl butyl ketone (heptanone-3)
Ethyl *n*-butyl malonate.
2-Ethyl butyraldehyde.
Ethyl *iso*-butyrate.
Ethylbutyro lactone.
Ethyl caprylate (ethyl octanoate).
Ethyl cinnamate (ethyl 3-phenyl propenoate).
Ethyl cyclohexyl glycidate.
Ethyl cyclohexyl propionate.
Ethyl dycylate (ethyl caprate).
Ethyl *iso*-eugenol.
Ethyl formate.
α-Ethyl furyl acrolein.
Ethyl furylpropionate (ethyl furfuryl hydracrylate).
Ethyl guaiacol (1-ethyl-3-methoxy-4-hydroxybenzene).
Ethyl heptanoate (ethyl oenanthate, ethyl *n*-heptylate, ethyl oenanthylate).
Ethyl hexadienoate (ethyl sorbate).
Ethyl hexanoate (ethyl caproate, capronic ether absolute).
Ethyl hydrocinnamate (ethyl phenylpropionate).
Ethyl lactate.
Ethyl laurate.
Ethyl levulinate.
Ethyl α-methylacetoacetate.
Ethyl β-methyl-β-amyl glycidate.
Ethyl methyl anthranilate.
Ethyl methyl *p*-tolyl glycidate.
Ethyl myristate.
Ethyl nitrite spirit (spirit of nitrous ether, sweet spirit of nitre).
2-Ethyl γ-nonalactone (lactone 100230 Geneva).
Ethyl nonanoate (ethyl pelargonate, ethyl *n*-nonoate).
Ethyl oleate.
Ethyl oxyhydrate (rum ether, principal component ethyl *n*-butyrate (q.v.)).
Ethyl phenylacetate.
Ethylphenylbutyrate.
Ethylphenyl glycidate.
Ethyl propionate.
Ethyl pyruvate.
Ethyl salicylate.
Ethyl sebacate.
Ethyl stearate.
Ethyl *p*-tolyl glycidate.
Ethyl undecylenate.
Ethyl *iso*-valerate (ethyl β-methylbutyrate, ethyl *iso*-valerianate).
Ethyl *n*-valerate.
Ethylene glycol monobutyl ether acetate.
Ethylene glycol monomethyl ether.
Eucalyptol (cineol).
iso-Eugenol (4-propenylguaiacol).
Eugenol acetate (acetyl eugenol).
Eugenol *iso*-amyl ether.
Eugenol benzoate.
Eugenol formate.
iso-Eugenol formate.
iso-Eugenol phenylacetate.

Farnesol.
d-Fenchone (*d*-1,3,3-trimethyl-2-norcamphanone).
Fenchyl alcohol.
Formic acid.
Furfuryl acetate.
Furfuryl alcohol (α-furyl carbinol).
Furfuryl mercaptan.
Furfurylidene acetone (furfural-acetone, 4 (2-furyl)-3-butene-2-one).
Furyl acetone.
Furyl acrolein.
Furyl ketone.
Fusel oil, refined (amyl alcohols).

Geranyl acetoacetate.
Geranyl benzoate.
Geranyl *iso*-butyrate.
Geranyl *n*-butyrate.
Geranyl caproate.
Geranyl ethylether.
Geranyl formate.
Geranyl phenylacetate.
Geranyl propionate.
Geranyl *iso*-valerate.
Glucose penta-acetate.
Glycol brassylate.
Glycolic acid (hydroxyacetic acid)
Guaiacol (*o*-methoxyphenol).
Guaiacyl phenylacetate.
Guaiol acetate.
Guaiol butyrate.

γ-Heptalactone.
n-Heptaldehyde (heptanal, *n*-heptyl aldehyde, oenanthaldehyde, aldehyde C-7).
n-Heptaldehyde-2,3-butylene glycol acetal.
Heptanone-2 (methyl *n*-amyl ketone, ketone C-7).
Heptyl acetate.
n-Heptyl alcohol (heptanol-1, alcohol C-7).
Heptyl *n*-butyrate.
Heptyl *iso*-butyrate.
Heptyl cinnamate (oenanthyl cinnamate).
Heptyl formate.
Heptyl octanoate (heptyl caprylate).
n-Hexanal (*n*-hexaldehyde, *n*-caproic aldehyde, *n*-hexoic aldehyde, capronaldehyde).
Hexanoic acid (*n*-caproic acid, *n*-hexoic acid).
n-Hexanol (*n*-hexyl alcohol).
2-Hexanal (2-hexen-1-al).
2-Hexen-1-ol.
3-Hexen-1-ol.
2-Hexenyl acetate.
Hexyl acetate.
Hexyl butyrate.
Hexyl caproate.
α-Hexyl cinnamic aldehyde.
Hexyl formate.
Hexyl furoate.
Hexyl octanoate (hexyl caprylate).
Hexyl pripionate.
Hydratropic alcohol.
Hydratropic aldehyde dimethyl acetal.
Hydratropyl butyrate (α-phenylpropyl alcohol, butyric ester).
Hydrocinnamic acid (phenyl propionic acid).
p-Hydroxybenzylacetone.
Hydroxycitronellal.
Hydroxycitronellal diethyl acetal.
Hydroxycitronellal dimethyl acetal.
Hydroxycitronellal and methyl anthranilate (base product).
Hydroxycitronellol.
14-Hydroxytetradecanoic acid (cyclopentadecanolide).

Indole (bensopyrrole).
α-Ionone.
β-Ionone.
Irisone ketone (*bis*).
α-Irone (6-methyl ionone).
Isopropyl acetate.
p-Isopropyl acetophenone.
Isopropyl alcohol.
Isopropyl *n*-butyrate.
Isopropyl *iso*-butyrate.
Isopropyl caproate.
Isopropyl cinnamate.
Isopropyl formate.
Isopropyl phenylacetate.
Isopropyl propionate.
Isopropyl quinoline.
Isopropyl *iso*-valerate.

FOR J. HUNGERFORD SMITH'S SYRUPS AND FRUITS...

Robert E. Fleming, vice president and sales manager of J. Hungerford Smith Company, points to lining in J&L steel container which affords "inside protection" to his company's syrups and fruits.

These exotic Maraschino cherries will arrive . . . anywhere . . . as fresh and flavorful as when they were packed in J&L open-head, five gallon lined-steel pails. Special double-coated linings and ring seals lock the goodness in . . . keeps contamination out.

Protection Must Be An Inside Job, Too!

Protection from the *inside* . . . insuring original flavors and freshness . . . is just as important to the world's largest manufacturer of soda fountain fruits and syrups, as is protection from external damage in transit.

To get this vital two-way protection, the J. Hungerford Smith Company, Rochester, N. Y., relies on J&L lined-steel containers for more than 100 of their products, including Maraschino cherries, chocolate syrup and flavorings for ice cream. Robert E. Fleming, vice president and sales manager, sums up the company's confidence in J&L containers: "We can guarantee arrival in perfect condition of shipments to any part of the country by using J&L lined-steel containers." No matter where the product is shipped . . . or how long it remains in the container . . . the special double-coated linings and ring seal closures, plus the strength of steel, keep the contents completely free of contamination.

This reliance upon J&L lined-steel containers is shared by processing companies throughout the world. A J&L container specialist will be happy to discuss your container problems with you in confidence. *Jones & Laughlin Steel Corporation, Pittsburgh 30, Pennsylvania.*

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STARCHES and SYRUPS

Keep your product in her cart ...week after week

Corn starches and syrups are time-tested, nourishing, economical carbohydrates. They've long been used and accepted as foods and food ingredients. They may be the answer to problems you have resulting from recent legislation regarding foods because:

In addition to being time-tested, nourishing, economical carbohydrates, corn starches and syrups can provide valuable functional properties as:

• Stabilizers • Emulsifiers • Binders • Humectants • Bland sweeteners • Texturizers • Preservatives (of natural body and color) • Thickeners (for consistency control) • Sugar Crystalization control • Coatings—Glazes

CORN STARCH is ideal for baking, baking powder, meats, mustard, salad dressing, custards, pudding, canned soups, etc.

CORN SYRUPS are used in mixed syrups, infant foods, preserves, jams, jellies, baked beans, sausage and cured meats, frozen and canned fruits, frozen deserts and many other products.

CORN SYRUP SOLIDS are widely used in ice cream, baked goods, frozen fruits, dry food mixes, jams, jellies, table ready and canned meats, to mention just a few.

Whatever you may be processing OK BRAND corn syrups or starches will help you keep your product in her cart week after week.

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Additives

Lauric acid.
Lauryl acetate (*n*-dodecyl acetate, dodecanol acetate, acetate C-12).
Levulinic acid (acetopropionic acid).
Linalyl anthranilate.
Linalyl benzoate.
Linalyl butyrate.
Linalyl *iso*-butyrate.
Linalyl caprylate.
Linalyl cinnamate.
Linalyl formate.
Linalyl propionate.
Linalyl *iso*-valerate (linalyl valerianate).

Maleic acid.
Malonic acid.
Maltol (3-hydroxy-2-methyl-4-pyrone, 3-hydroxy-2-methyl-γ-pyrone, larixinic acid).
1,8-*p*-Menthadien-7-ol (1-hydroxy-methyl-4-isopropenyl-1-cyclohexene, perillyl alcohol).
Menthol (hexahydrothymol, 3-*p*-menthanol, 5-methyl-2-isopropyl-hexahydrophenol).
d-*neo*-Menthol (5-methyl-2-isobutyl-hexahydrophenol).
Menthone (*p*-menthanone).
Menthyl acetate.
Menthyl *iso*-valerate.
Methallyl butyrate.
o-Methoxy methyl benzoate.
2-Methoxy-4-methyl phenol (4-methyl guaiacol, creosol, 2-methoxy-*p*-creosol, 4-hydroxy-3-methoxy-1-methylbenzene).
1-(*p*-Methoxyphenyl)-2-propanone (anisyl methyl ketone, *p*-methoxy phenylacetone).
4-(*p*-Methoxyphenyl) butanone-2 (anisyl acetone).
1-(*p*-Methoxyphenyl) penten-1-one-3 (α methyl anisylidene acetone, ethone).
p-Methoxytoluene (1-cresyl methyl ether, 4-methoxytoluene, methyl benzyl ether).
Methyl acetate.
p-Methyl acetophenone (methyl *p*-tolyl ketone, *p*-acetyl toluene, 1-methyl-4-acetyl benzene).
Methyl anisate.
Methyl benzoate (oil of niobe).
Methyl benzyl acetate.
α-Methyl benzyl acetone.
p-Methyl benzyl acetone.
α-Methyl benzyl alcohol (methyl phenylcarbinol, 1-phenylethanol).
Methyl *iso*-butyl ketone.
2-Methyl butyraldehyde.
Methyl *n*-butyrate.
Methyl *iso*-butyrate.
Methyl cetine carbinate (methyl 2-heptadecenoate).
Methyl chavicol (chavicol methyl ether, *p*-methoxyallylbenzent, *p*-allylanisole, estragole, esdragol).
Methyl cinnamate.
α-Methyl cinnamic aldehyde.
3-Methyl coumarin.
6-Methyl coumarin.
Methyl *o*-cresyl ether (methyl *o*-tolyl ether, *o*-cresyl methyl ether, 2-methoxytoluene).
Methyl *p*-cresyl ether.
1-Methylcyclopentadione-2,3 (methylcyclopentenolone).
1-Methyl-1-cyclopentene-2-ol-3-one butyrate (2-hydroxy 3-menthyl 2-cyclopenten-1-one butyrate).
1-Methyl-1-cyclopentene-2-ol-3-one isovalerate (2-hydroxy 3-methyl 2-cyclopentene-1-one isovalerate).
Methyl decyne carbonate (methyl 2-decynoate).
Methyl dihydroabietate.
6-Methyl benzodihydropyrone (6-methyl dihydrocoumarin, methyl melilotine).
Methyl-3, 4-dimethyl-2, 3-epoxy-4-hexenoate (strawberry aldehyde derivative).
4-Methyl-7-ethoxy-benzopyrone (4-methyl-7-ethoxycoumarin).
Methylethyl acetaldehyde (2-menthyl butanal-1).
Methylethyl ketone.
Methyl eugenol (eugenol methyl ether, 1-2-dimethoxy-4-allylbenzene).
Methyl *iso*-eugenol.
5-Methyl furfural.
Methyl furoate.
α-Methyl furyl acrolein.
Methyl heptenone (6-methyl-5-hepten-2-one).
Methyl heptine carbonate (methyl-2-heptynecate).
Methyl heptylate (methyl oenanthate).
Methyl heptyl ketone (nonanone-2).
Methyl hexanoate (methyl caproate).
Methyl-2-hexenoate.
Methyl hexyl acetaldehyde.
Methyl hexyl ketone.
p-Methyl hydrotropic aldehyde.
Methyl *p*-hydroxybenzoate.
Methyl α-ionone (α-cetone).
Methyl-δ-ionone.
Methyl-γ-ionone.
α-Methyl *iso*-ionone.

Methyl laurate.
Methyl mercaptan.
Methyl-4-methyl-pentanoic acid (methyl-*iso*-caproate, methyl *iso*-butylacetate).
1-Methyl-4(4-methyl-3 pentenyl)-1,2,3,6-tetrahydrobenzaldehyde (1-methyl-4-iso-hexenyl-Δ-3-tetrahydrobensaldehyde).
Methyl-β-methylthiopropionate (methyl-β-methyl mercaptopropionate).
Methyl myristate.
Methyl-α-naphthyl ketone.
Methyl-β-naphthyl ketone.
Methyl nonyl acetaldehyde (aldehyde C-12).
Methyl nonyl ketone (undecanone 2).
Methyl nonylen-2-ate.
Methyl octanoate (methyl caprylate).
Methyl octyne carbonate (methyl 2-octynoate).
Methyl pelargonate.
2-Methyl pentanoic acid.
Methyl phenylacetate (methyl-α-toluate).
Methyl phenyl butanone.
Methyl phenyl butyrate.
Methyl pheuyl glycidate.
Methyl phenyl methyl glycidate.
Methyl phenyl propionate.
Methyl propionate.
Methyl *N*-propyl ketone.
ρ-Methyl quinoline.
β-Methylthiopropionaldehyde (methylmercaptopropionaldehyde, methional).
Methyl undecylenate.
Methyl undecyl ketone.
Methyl *iso*-valerate.
Methyl vanillyl ketone.
Methylol methyl amyl ketone (ketone alcohol).
Methylol methyl hexyl ketone acetate (ketone alcohol ester).
Musk ambrette (2,6-dinitro-1-methyl-4-*tert*-butyl-3-methoxy-benzene).
Musk ketone (4,6-dinitro-1,3-dimethyl-5-*tert*-butyl-2-acetyl benzene).
Musk tibetine (2,6-dinitro-3,4,5-trimethyl-1-*tert*-butyl benzene).
Musk xylol (2,4 6-trinitro-1,3-methyl-5-*tert* butyl benzene).
Myrcene (7-methyl-3-methylene-1,6-octadiene).

β-Naphthyl anthranilate.
β-Naphthyl *iso*-butyl ether.
β-Naphthyl ethyl ether (nerolin, ethyl-2-naphthyl ether).
β-Naphthyl methyl ether (yara-yara).
Nerol.
Nerolidol.
Neryl acetate.
Neryl butyrate.
Neryl *iso*-butyrate.
Neryl formate.
Neryl propionate.
Neryl *iso*-valerate.
Nonanal (pelargonaldehyde, pelargonic aldehyde, aldehyde C-9).
Nonanediol 1,3-acetate, mixed esters (octyl crotonyl acetate, hexylene glycol diacetate, jasmonyl).
n-Nonoic acid (pelargonic acid, nonanoic acid).
n-Nonyl acetate (nonanol acetate, acetate C-9).
n-Nonyl alcohol (nonanol-1, alcohol C-9).
γ-Nonyl lactone (γ-*n*-amyl butyrolactone, aldehyde C-18).
Nonyl octanoate (nonyl caprylate).
n-Nonyl *iso*-valerate.
γ-Octalactone.

Octanal (caprylaldehyde, caprylic aldehyde, *n*-octaldehyde, aldehyde C-8).
Octanal dimethyl acetal (dimethoxy-octane, C-8 dimethylacetal).
Octanoic acid (caprylic acid, *n*-octoic acid).
1-Octanal (*n*-octanol, heptyl carbinol, *pri*-*n*-octyl alcohol, alcohol C-8).
2-Octanol (*n*-octyl alcohol, methyl hexyl carbinol, capryl alcohol).
n-Octyl acetate (2-ethyl hexyl acetate, acetate C-8).
n-Octyl butyrate.
n-Octyl *iso*-butyrate.
n-Octyl caprylate.
n-Octyl formate.
n-Octyl heptylate.
n-Octyl phenylacetate.
n-Octyl propionate.
n-Octyl salicylate.
n-Octyl *iso*-valerate.

n-Pelargonyl morpholide.
Pentadecanolide (angelica lactone).
iso-Pentaldehyde.
Perillyl acetate.
α-Phellandrene (ρ-menthadiene-1,5).
Phenoxyacetic acid.
Phenoxyethyl *iso*-butyrate.
Phenylacetaldehyde.
Phenylacetaldehyde dimethyl acetal.
Phenylacetic acid (α-tolulc acid).
Phenyl dimethyl carbinyl *iso*-butyrate.
Phenylethyl acetate (β-phenylthyl acetate, benzyl carbinyl acetate).

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If you are manufacturing a food product in which a baking process is involved at one or more vital points of production, you ought to know more about WERNER baking equipment. Famous in the cookie and cracker world as the creator of time and cost saving baking equipment, WERNER engineering is also serving other food industries with a variety of automatic, specially-engineered efficiency equipment.

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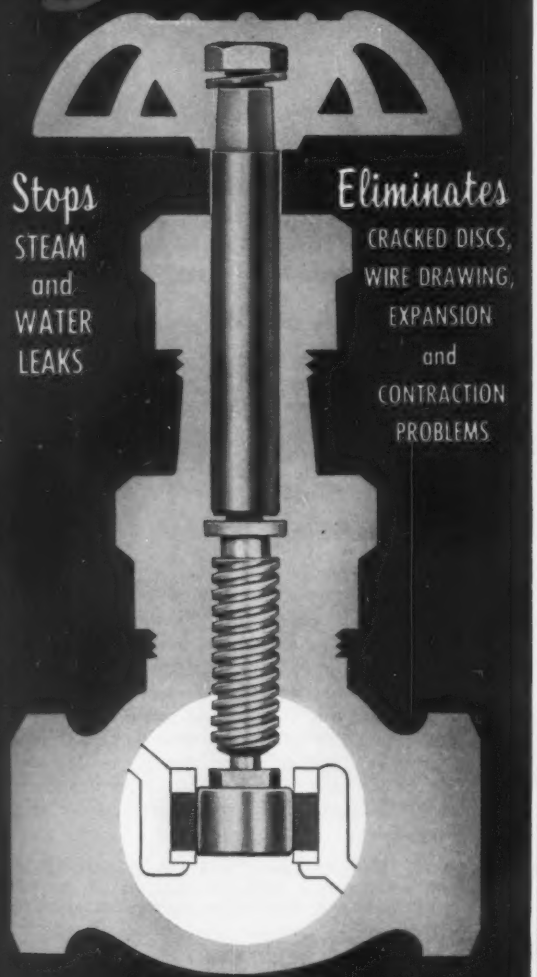

A resilient sealing ring and stainless steel piston replace the metal seat or disc found in the conventional valve, the cause of most valve troubles. The Strahman Valve seals itself as a cork seals a bottle. In throttling, the erosive action of the elements passing through the valve cannot have any effect on the sealing surfaces.

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NICOLET AVE., FLORHAM PARK, N. J.

Additives

Phenylethyl alcohol (β-phenylethyl alcohol, benzyl carbinol).
α-Phenylethyl alcohol (methyl phenyl carbinol).
Phenylethyl anthranilate.
Phenylethyl benzoate.
Phenylethyl butyrate.
Phenylethyl *iso*-butyrate.
Phenylethyl carbinol.
Phenylethyl cinnamate.
Phenylethyl dimethyl carbinyl *iso*-butyrate.
Phenylethyl formate.
β-Phenylethyl furoate.
Phenylethyl methyl carbinol.
Phenylethyl methyl carbinol acetate.
Phenylethyl methyl ethyl carbinol.
Phenylethyl phenyl acetate.
Phenylethyl propionate.
Phenylethyl *n*-propyl acetal.
Phenylethyl salicylate.
Phenylethyl tiglate.
Phenylethyl *iso*-valerate.
Phenyl methyl carbinol (styryl alcohol).
α-Phenylpropionaldehyde (hydratropyl aldehyde, α-methyl phenyl acetaldehyde, α-methyl tolualdehyde).
β-Phenylpropionaldehyde (phenyl propyl aldehyde, hydrocinnamaldehyde, hydrocinnamic aldehyde, benzylacetaldehyde).
Phenylpropyl acetate (hydrocinnamyl acetate).
Phenyl *n*-propyl alcohol (hydrocinnamic alcohol).
3-Phenylpropyl butyrate.
α-Phenylpropyl butyrate.
Phenylpropyl *iso*-butyrate.
Phenylpropyl caproate.
Phenylpropyl cinnamate.
Phenylpropyl formate.
Phenylpropyl propionate.
Phenylpropyl *iso*-valerate.
Phenyl salicylate.
Phthalide (1(3)-*iso*-benzofuranone, α-hydroxy-*o*-toluic acid lactone).
α-Pinene.
β-Pinene.
Piperine.
δ-Piperitone (1-*p*-menthen-3-one, 1-methyl 4-isopropyl-1-cyclohexene-3-one).
Piperonyl acetate (heliotropyl-acetate).
Piperonyl acetone.
Piperonyl *iso*-butyrate.
Polycyclic musk.
Propanal (propionic aldehyde).
Propenyl guaethol (hydroxymethyl anethole).
Propionaldehyde, hydrogen sulfide reaction product.
n-Propyl acetate.
n-Propyl alcohol.
p-Propyl anisole (dihydroanethole, propyl methoxybenzene).
n-Propyl benzoate.
n-Propyl butyrate.
n-Propyl *iso*-butyrate.
n-Propyl caproate.
n-Propyl cinnamate.
n-Propyl formate.
Propyl furoate.
Propyl furylacrylate.
n-Propyl heptylate.
n-Propyl *p*-hydroxybensoate.
Propyl mercaptan (propyl thiol).
n-Propyl phenylacetate.
Propyl propionate.
n-Propyl propionate.
n-Propyl *iso*-valerate.
Propylene glycol stearate.
iso-Pulegol.
iso-Pulegol acetate.
Pulegone (Δ-4(8)-*p*-menthen-3-one, 1-methyl - 4 - isopropylidene-cyclohexan-3-one).
iso-Pulegone (Δ-8(9)-*p*-menthen-3-one, 1-methyl-4-isopropenyl-cyclohexan-3-one).
Pyrazine.
Pyridine.
Pyruvic acid (pyro-racemic acid).
Pyruvic aldehyde (methyl glyoxal).

iso-Quinoline.

Resorcinol dimethyl ether (1,3-dimethoxybenzene).
Rhodinyl acetate.
Rhodinyl butyrate.
Rhodinyl *iso*-butyrate.
Rhodinyl formate.
Rhodinyl phenylacetate.
Rhodinyl propionate.
Rhodinyl *iso*-valerate.

Salicylic aldehyde (*o*-hydroxybenzaldehyde).
Santalol.
Santalyl acetate.
Santalyl phenylacetate.
Skatole (β-methylindole, 3-methylindole).
γ-Stearolactone.
Styralyl acetate (methyl phenylcarbinyl acetate).
Styralyl benzylic ether (methyl phenylcarbinyl benzylic ether).
Styralyl butyrate (methyl phenylcarbinyl butyrate).
Styralyl formate (methyl phenylcarbinyl formate).
Styralyl propionate (methyl phenylcarbinyl propionate).

Terpine-4-ol (1-*p*-menthen-4-ol, 1-methyl-4-isopropyl-1-cyclohexene-4-ol, terpineol-(4).
α-Terpineol (terpineol).
Terpinolene (1,4(8)-terpadiene).
Terpinyl acetate.
Terpinyl anthranilate.
Terpinyl butyrate.
Terpinyl *iso*-butyrate.
Terpinyl cinnamate.
Terpinyl formate.
Terpinyl propionate.
Terpinyl *iso*-valerate.
Tetradecanoic acid (myristic acid).
n-Tetradecyl aldehyde (myristinaldehyde, tetradecanal, aldehyde C-14).
Tetrahydrofurfuryl acetate.
Tetrahydrofurfuryl alcohol.
Tetrahydrofurfuryl butyrate.
Tetrahydrofurfuryl propionate.
Tetrahydro-*pseudo*- ionone.
Tetrahydrolinalool.
1,2,3,4-Tetrahydro-6-methylquinoline (tetrahydro *p*-toluquinoline, tetrahydro *p*-methylquinoline)
3,4,5,6-Tetrahydropyronyl-2-methyl acetate.
Thienyl mercaptan.
Thymol.
iso-Thymol.
Tolualdehyde s, mixed, *o*, *m*, *p*.
Tolualdehyde glyceryl acetal, mixed, *o*, *m*, *p*.
Tricarballylic acid (1,2,3-propane tricarboxylic acid).
Trichloromethyl phenyl carbinyl acetate.
Triethyl citrate (ethyl citrate).
Triethyl *o*-formate.
2,6,6-Trimethyl-bicyclo-(1,1,3)-hepten-2-one-4 (verbenone).
Trimethyl cyclohexanol (3,3,5-trimethyl-cyclohexanol-1).
Trimethyl cyclohexanyl salicylate.
γ-Undecalactone (γ-undecyl lactone, γ-*n*-heptyl butyrolactone, aldehyde C-14, peach aldehyde).

Undecenyl acetate (10-hendecenyl acetate, undecene-1-ol-11-acetate, undecylenic acetate).
n-Undecyl alcohol (undecanol-1, undecylic C-11).
Undecylenic aldehyde (aldehyde C-11).
Undecylic aldehyde (undecanal).

Valeraldehyde.
Valeraldehyde and hydrogen sulfide, reaction product.
n-Valeric acid (pentanoic acid).
iso-Valeric acid (β-methyl butyric acid, valerianic acid, active valeric acid).
iso-Valeric aldehyde (2-methyl butanal-4).
γ-Valerolactone (3-methylbutyrolactone, 3-valerolactone).
-Valerolactone (4-valerolactone, tetrahydro-α-pyrone, tetrahydrocoumalin).
iso-Valerophenone (phenyl *iso*-butyl ketone).
Vanillylidene acetone.
Veratraldehyde (vanillin methyl ether).
Vetiverol (vetivenol, vetivol).
Vetiveryl acetate (vetivenyl acetate, vetiverol acetate, vetacetyl).
Vetiveryl formate.
Vetiveryl propionate.
Vetiveryl *iso*-valerate.
p-Vinyl guaiacol.

Zingerone (3-methoxy-4-hydroxybenzylacetone).

FOLIC ACID use specified and extended until Mar. 1, 1961, under following conditions:

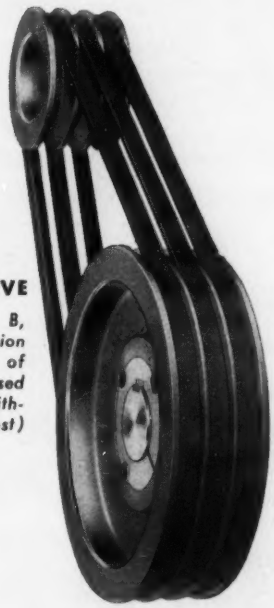
Product—Folic acid preparations.

Limits—0.4 Milligram folic acid/day.

Restriction—Dietary supplement.

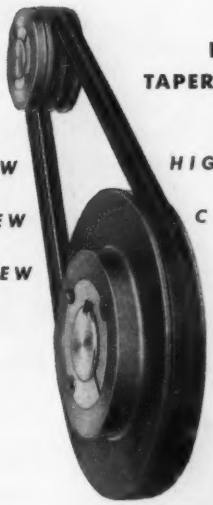
an entirely new line of
V-Belt Drives . . . . .

DODGE Dyna V



BIG-GROOVE TAPER-LOCK DRIVE

(— using standard A, B, C, D and E cross section belts, the hp ratings of which have been increased an average of 40% without any increase in cost)



DYNA-V TAPER-LOCK DRIVE

NEW HIGH CAPACITY

NEW COMPACTNESS

NEW SAVINGS IN COST

COMPARISON, ILLUSTRATED ABOVE — 3 HP, 1750 RPM, 2.41 TO 1 RATIO

	BELTS		SHEAVES			CENTER DISTANCE	HP	WEIGHT (LBS.)	COST	
	Number	Size	O.D. Driver	O.D. Driven	Width				Per hp	Per Drive
BIG-GROOVE TAPER-LOCK DRIVE	3	A42	4.15"	8.95"	2½"	12.3"	4.62	24.7	$5.62	$25.98
DYNA-V TAPER-LOCK DRIVE	2	3V400	3.35"	8.00"	1$\frac{13}{32}$"	10.8"	5.0	18.0	$4.50	$22.50
% SAVING Savings vary with different sized drives			19%	10%	56%	12%	+	27%	19.9%	13.4%

Dyna-V Drives are sensationally compact. They are capable of handling up to three times as much horsepower in a given space. Dyna-V opens vast new possibilities for better, more economical machine design. And, in most instances, *Dyna-V costs less!*

Narrower grooves, to match stronger, narrower Dyna-V Belts, greatly reduce the face width and the weight of Dyna-V Sheaves. Cost is lowered. Smaller diameter sheaves and shorter center distances multiply savings.

Dyna-V Sheaves decrease shaft overhang—increase bearing life. The new dimensional stability of Dyna-V Belts solves the problem of belt matching. Every belt carries its full share of the load.

Dyna-V Drives are available for capacities from 1 to 1500 hp. Ask your Dodge Distributor. Or write us for new Dyna-V Bulletin.

DODGE MANUFACTURING CORPORATION, 2800 Union St., Mishawaka, Indiana

DODGE of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the *white* pages of your telephone directory, or in the yellow pages under "Power Transmission Machinery".

MEN & COMPANIES

Edwin J. Foltz

International Boosts . . . Two major food firms, Campbell Soup and Minute Maid, announced key executive changes in their expanding international operations.

Edwin J. Foltz is now international v.-p. of Campbell's and president of Campbell's Soups International (the international div. of Campbell Soup Co.). Formerly personnel v.-p., Mr. Foltz has been with Campbell's since '53 and has held posts as assistant director-personnel administration, and later director. Prior to his Campbell affiliation, he was with the F.B.I. William E. Harwick succeeds Mr. Foltz as personnel v.-p.

At Minute Maid, Gerald D. Bartrem moves up to sales and marketing v.-p., international. Mr. Bartrem came to MM in '56 as sales director of Citrus Products Div., with a 20-yr. background in food sales and promotion at General Mills. In his new post, he will supervise export sales of all MM citrus products as well as Tenco Division's soluble coffee and tea foreign sales.

Gerald D. Bartrem

Charles P. McCormick

Gantt Medal Winner— Charles P. McCormick is the 1960 recipient of the Henry Laurence Gantt Medal for "distinguished achievement in management as a service to the community."

Mr. McCormick was cited by the Board of Award as "a dynamic leader in business, a successful practitioner of modern principles of scientific management, and valuable contributor of accepted improvements to the management profession, encompassing the humanities without sacrifice of profitable corporate performance . . ."

For the past five years he has held the position of board chairman at McCormick & Co. following 23 years as company president. He is the author of "Multiple Management" and "The Power Of People," and has served as a U. S. employer delegate to the International Labor Organization, a delegate to the NATO Atlantic Congress, and as a member of the President's Assay Commission.

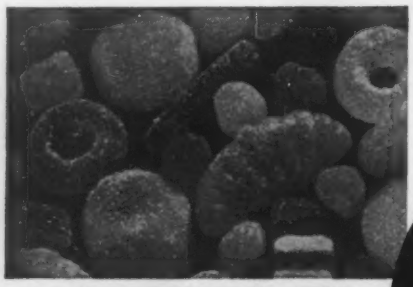
Personnel

J. Dan Wright, Jr., succeeds **J. R. Graves** as chairman of Florida Citrus Commission.

Milton A. Zimmerman is new director of plant operations for Campbell's Soups International, succeeding **Joseph F. Rex** who becomes Chicago assistant plant manager.

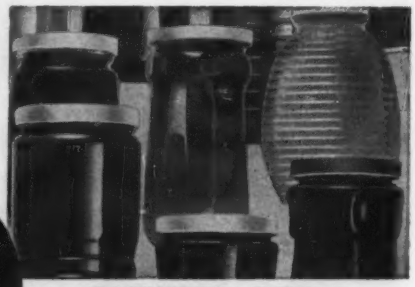
L. C. Ringhaver is new president of the Shrimp Assn. of Americas.

Dr. H. E. Robinson, Swift v.-p. in charge of research labs, engineering research,

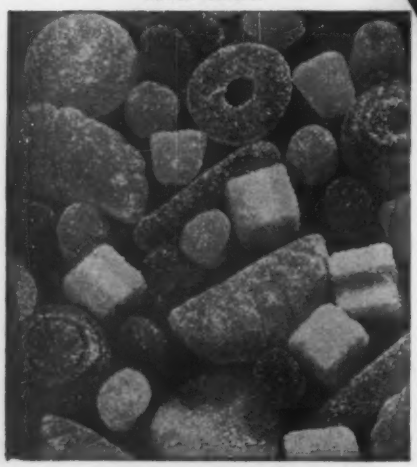


CONFECTO-JEL
Especially made for Jellied Candies

for better product consistency and quality
Always Depend On
SPEAS
APPLE PECTINS
35 years



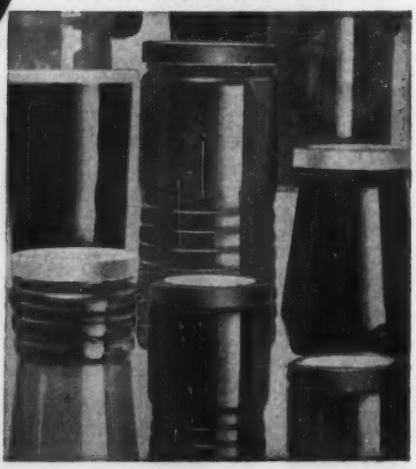
NUTRL-JEL
Regular and Slow Set
For Finest Jams, Jellies and Preserves

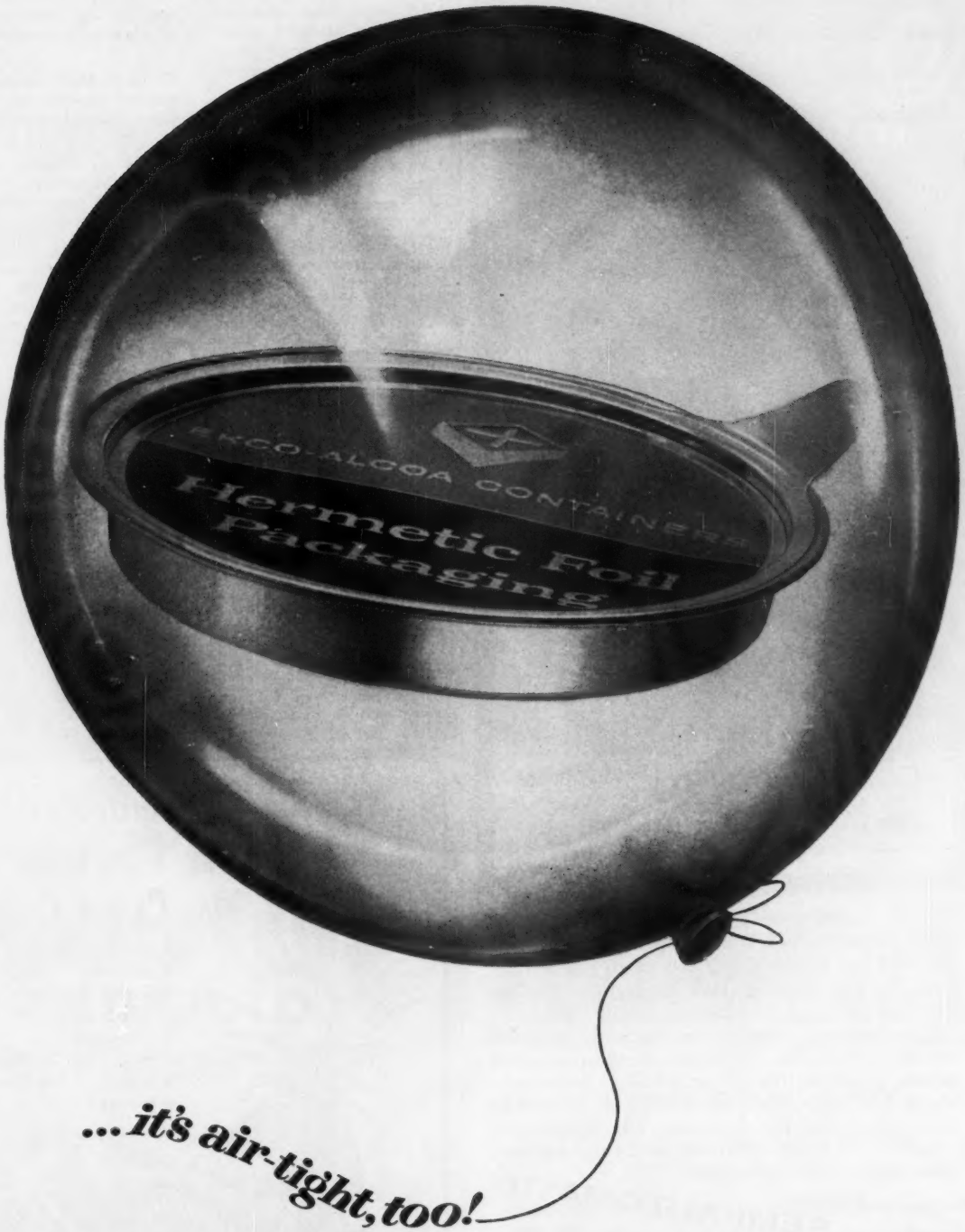


- Adaptable to wide range of PH levels.
- Neutral color and flavor—blends naturally with more different fruits than any other pectin.
- Gives product resiliency to avoid breakage during shipping.
- Improves spreadability of jams, jellies and preserves.
- Standardized to uniform strength so that product always has the same consistency.

Write, wire or phone for full information, technical advice, or location of nearest warehouse.

SPEAS COMPANY
DEPT. FE-10
GENERAL OFFICES • KANSAS CITY 20, MO.





...it's air-tight, too!

. . . the first and only aluminum foil container with a true hermetic seal. Neither air nor moisture can penetrate this new Ekco-Alcoa Smoothfoil package. Keeps moist products moist, dry products dry. Protects products which have a tendency to mold or become rancid. Eliminates insect infestation and the sifting of powdered products.

Tops in convenience and beauty, too. Simple pull tab cover opens the package . . . no keys or can openers required. Easy to serve from. Available in natural aluminum or lustrous, distinctive colors.

Economical Smoothfoil comes in many shapes and sizes, covering a broad range of packaging possibilities. For full information, write . . .

The Plus Container

EKCO-ALCOA CONTAINERS INC.

WHEELING, ILLINOIS · WHITTIER, CALIFORNIA · LONG ISLAND CITY, NEW YORK

EKCO is the registered trademark of Ekco Products Company; ALCOA is the registered trademark of Aluminum Company of America. The corporate name and combination mark, EKCO-ALCOA, is used under license to the manufacturer by each of these companies.

CIRCLE 123 ON READER SERVICE CARD 123

Colletta makes possible money saving mechanical labeling on short runs. Works on proven labeling system with full surface gluing and micro-glue adjustment. No glue smearing. Hair line register. Handles stiff glues and synthetic adhesives equally well.

Operation change-over and setting up is simple and fool proof. No special skill needed. Readily converted to fully automatic through use of easily fitted attachments. Changes from one size or shape of container to another take less than 5 minutes. Almost unlimited versatility, up to one gallon size. Send today for complete information. Use coupon.

another **SEMI-AUTOMATIC** by **PNEUMATIC**

Pneumatic Scale Corp., Ltd.
91 Newport Avenue, Quincy 71, Mass. *Branches, Chicago and New York*
Please send us complete information on Colletta Labelers.

NAME_____ Position_____

COMPANY_____

ADDRESS_____

124 CIRCLE 124 ON READER SERVICE CARD

and equipment development, has assumed direction of a number of products-for-industry succeeding retired **E. A. Moss.**

Sidney Schwartz, national sales manager of Downeyflake Foods, has been reelected president of Eastern Frosted Foods Assn.

J. J. Moran will assume post as director of cereals merchandising for Grocery Products Div. of General Mills. Merchandising chief of flour and mix products is **E. H. Kees.**

Ira O. Shy succeeds **Val. S. Bauman** as National Tea sales v.-p.

Robert O. Wilson, formerly a process engineer for Archer - Daniels - Midland, will join Thomas J. Lipton's research lab in N.Y.C.

James R. Klenske is now assistant general sales manager for Mars, Inc.

Paul J. Ritter succeeds his brother, the late **William H. Ritter, Jr.,** as president of P. J. Ritter Co., Bridgeton, N. J., manufacturers of glass-packed specialties.

Ervin A. Hoff becomes executive director of U. S. Cane Sugar Refiners' Assn.

Martin A. Glasgow retired as administrative v.-p. of Borden Foods after 29 years' service.

Norman R. Olley, secretary and controller of R. T. French Co., retired after 49 years' service to the firm.

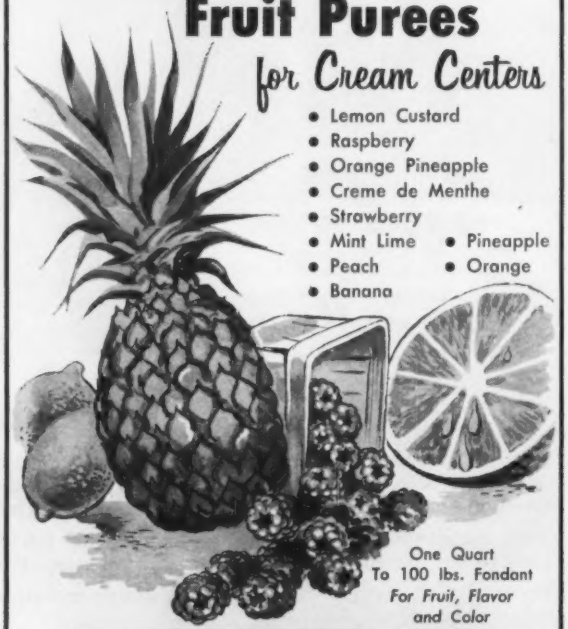
Lawrence E. Tomsky moves up to assistant v.-p. of Standard Brands Sales Co.

Edward M. Scheu, former president of Diamond Match Co. Division of Diamond National Corp., moves over to Thomas J. Lipton as development v.-p.

Emerson F. Schroeder, president of Corn Products International, moves up to senior v.-p. of C P Co. At same time, **Frank Murphy,** v.-p. and general manager of western region CP Sales, Best Foods Div., retired.

ILLĒS Concentrated
Fruit Purees
for Cream Centers

- Lemon Custard
- Raspberry
- Orange Pineapple
- Creme de Menthe
- Strawberry
- Mint Lime
- Pineapple
- Peach
- Orange
- Banana

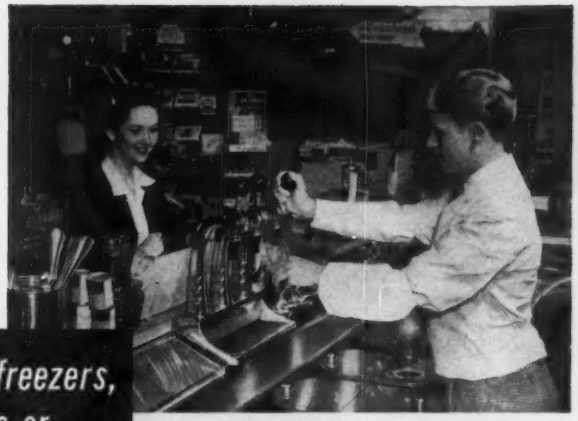


One Quart
To 100 lbs. Fondant
For Fruit, Flavor and Color

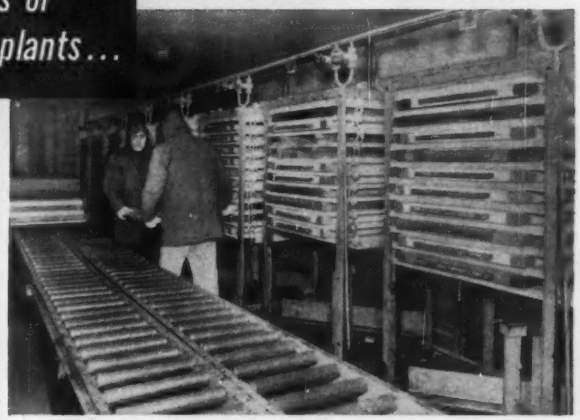
A. E. ILLĒS COMPANY
Manufacturers of Fine Flavors
P. O. BOX 35412 DALLAS, TEXAS

CIRCLE 164 ON READER SERVICE CARD

Wherever you refrigerate food...



in package freezers, display cases or frozen food plants...



Insist on

genetron®

SUPER-DRY REFRIGERANTS

"Genetron" super-dry refrigerants are universally accepted for use as original or replacement charge in modern equipment designed for fluorinated hydrocarbon refrigerants. Leading manufacturers of frozen food refrigeration equipment approve them. Refrigeration engineers specify them. Wholesalers recommend them. Servicemen and contractors know they can depend on them. That's because "Genetrons" offer unexcelled purity and dryness . . . and their strict quality specifications are consistently *bettered* in production. "Genetrons" are available from wholesalers everywhere, coast to coast.

See your wholesaler! Insist on "Genetron"!

A "Genetron" Super-Dry Refrigerant for every frozen food application!

genetron 11 ORANGE LABEL CCl_3F TRICHLOROMONOFLUOROMETHANE
genetron 12 WHITE LABEL CCl_2F_2 DICHLORODIFLUOROMETHANE
genetron 22 GREEN LABEL $CHClF_2$ MONOCHLORODIFLUOROMETHANE
genetron 113 PURPLE LABEL $C_2Cl_3F_3$ TRICHLOROTRIFLUOROETHANE
genetron 114 BLUE LABEL $C_2Cl_2F_4$ DICHLOROTETRAFLUOROETHANE

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

CIRCLE 125 ON READER SERVICE CARD 125

SEMCO Components

HEART of the BULK MATERIAL CONVEYING SYSTEM

BLOWER UNIT

V-Belt Drive...
Shipped Completely Assembled

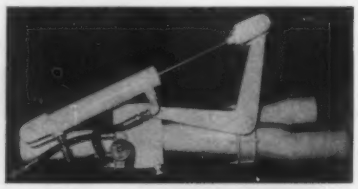
CONVEYING VALVE

Precision-Built...
Easily Installed

CAST IRON OR STAINLESS STEEL

AUTOMATIC FLOW DIVERTER

Simple...
Light-Weight...
Fast...
Efficient



VACUUM FILTER UNIT

Self-Cleaning Mechanism

WRITE FOR 1960 CATALOG.

These components of bulk conveying systems can increase your profits by handling your material faster, more economically. Consult us for any of these units . . . or a complete system . . . and the name of our representative nearest to you.

SEMCO SYSTEMS ENGINEERING & MANUFACTURING CO., INC.
P.O. BOX 7634 · 6330 WASHINGTON AVENUE · HOUSTON 7, TEXAS

Industry

Franklin County Sugar Co., Preston, Idaho, was recently sold to **Amalgamated Sugar Co.**, Ogden, for an undisclosed sum. Thomas Heath, president of Preston operation, announced that firm will now be known as Franklin County Div. of Amalgamated Sugar Co.

Consolidated Foods Corp. acquired 58% of **Charles E. Hires** common stock for about $4.2 million.

Lawry's Foods, Inc. is constructing a $1 million "international administrative center" in Los Angeles.

Typhoo Tea, Ltd., Birmingham, England, still awaits bids for company's control after British Govt. torpedoed $61 million merger offer of Kraft Foods, Ltd., on currency control bugaboo. Kraft bid consisted of 40% cash and remainder in shares of **National Dairy Products Corp.**, Kraft's parent firm.

Wm. Underwood Co. has poured over $1 million into a new Venezuela subsidiary near Caracas. Production is expected before end of '60.

General Mills Flour Div. and **Palazio Horvilleur Co., Ltd.**, Managua Nicaragua, announced joint formation of new corporation for wheat, corn flour, and livestock feed production in Nicaragua.

Firmenich, Inc., has appointed J. M. Posternak to direct the new Toxicological and Pharmacological Research Labs in Geneva, Switz.

Frito Co.'s acquisition of the **Williams Potato Chip Co.**, Portland, Ore., and the **Williams Co.**, Seattle, brings number of plants firm operates in U. S. to 23.

Duffy-Mott Corp. moves into West Coast market with announcement of purchase of **Pratt-Low Preserving Corp.**, Santa Clara, Calif., formerly property of **Thriftimart, Inc.**

Green Giant Co. reached merger agreement with **Michigan Mushroom Co.** Dealing in industry's fastest growing vegetable commodity, Michigan firm will continue packing under Dawn Fresh label, according to GG president L. E. Felton. GG also purchased majority of outside stock in former affiliate Green Giant of Canada, Ltd., which becomes subsidiary of parent firm.

H. J. Heinz purchased **Reymer & Bros., Inc.**, manufacturers of fruit-based drinks. Reymer-labeled "Blennd" line will now be distributed nationally.

Associated Industries

Packaging Corp. of America purchased a former H. J. Heinz plant in Berkley, Calif., for manufacture of molded pulp packaging materials.

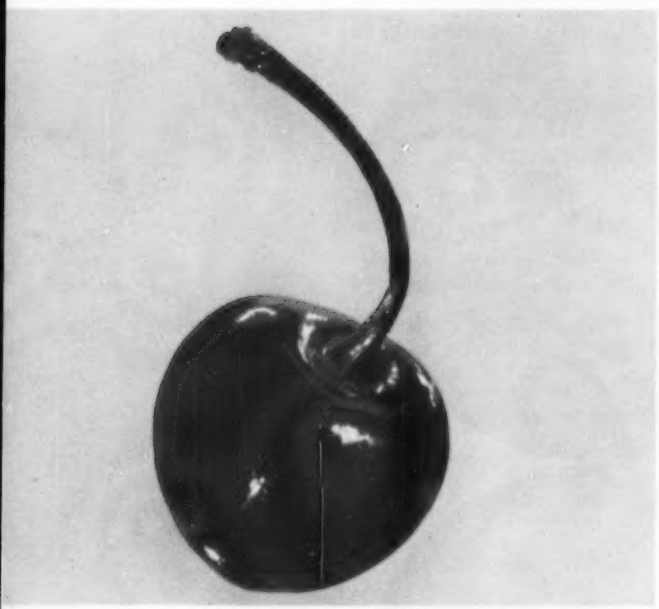
U.S.I.'s new addition to its polyethylene plant in Houston has just been completed.

Edmund W. J. Faison, Visual Research, Inc., president, heads up Visual Research International, newly formed association of companies with purpose of providing package and marketing research on international basis.

Rap-In-Wax Co. of Minneapolis has acquired National Packaging Corp., Fort Wayne, Ind., through stock exchange transaction.

Fred M. Stefan is new president and director of Milprint, Inc.

FOUR SHRIMP VARIETIES from Gorton's of Gloucester are being produced at firm's recently acquired Florida Frozen Food Processor's plant in Miami, Fla. Gorton products are distributed on the West Coast under the Prawn Label.



Flavorful, quality, eye-appealing foods...

naturally superior...when made with...

sugars, starches and syrups from

INDUSTRIAL DIVISION
CORN PRODUCTS
COMPANY

WRITE OR PHONE *Corn Products for expert technical assistance... helpful data on these fine products for the Food Industry:*
CERELOSE® dextrose sugar · REX® and GLOBE® corn syrups · BUFFALO® · HUDSON RIVER® and SNOWFLAKE® starches.

CORN PRODUCTS COMPANY INDUSTRIAL DIVISION · 10 East 56 Street, New York 22, N. Y.

MYVACET® Distilled Acetylated Monoglycerides are now approved for edible use

These products, whose research studies have disclosed many interesting properties, are now ready for your new product development program. Sec. 121.1018, U. S. Food and Drug Regulations, authorizes their use, up to 5% in finished food, as

"(1) A food coating agent
(2) A food container component
(3) An equipment lubricant
(4) An emulsifier in food."

We have prepared Bulletin A-1 to give general information on this subject; included are a list of 69 pertinent scientific papers and patents and a compilation of many suggested uses. These range from slab oils to shortenings, and include coatings for foods as well as plasticizers for other coating materials.

Other bulletins are now available which give information on specific applications:

A-2. Poultry
A-3. Frozen and Processed Meats
A-4. Frozen Fish
A-5. Dried Fruits
A-6. Nuts and Candies
A-7. Storage Eggs

Food processors are welcome to copies of these bulletins, as well as samples of different types of *MYVACET Distilled Acetylated Monoglycerides.*

Information and quotations from ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

distillers of monoglycerides made from natural fats and oils

DPi

Also . . . vitamin A in bulk for foods and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

It takes more than paperboard to make

OLIN CARTONS

resources • basic research • modern equipment • printing skills • package design quality control • • dedication . . .

OLIN MATHIESON
Packaging Division
P. O. Box 488, West Monroe, Louisiana

OTHER OLIN PACKAGING PRODUCTS: **CONTAINERS, BAGS, CELLOPHANE, POLYETHELENE, FINE PAPER**
Write for Illustrated Brochure "The Olin Carton Service"

Grinnell-Saunders Food and Beverage Valves on syrup at approximately 5 lbs psig at 7-UP Bottling Company, Dallas, Texas. Valves operate an average of 5 times daily. Capacity of plant is 575 bottles per minute.

7up Dallas plant reports:

No leaks, no sticky valves, no diaphragm changes for two years with Grinnell-Saunders Diaphragm Valves

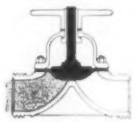
Prior to the installation of Grinnell-Saunders Food and Beverage Valves at the 7-UP Bottling Company plant in Dallas, plug cock valves were used. Following approximately 3 months' service, these former valves began to leak — eventually necessitating expensive regrinding to improve the situation.

Since installing Grinnell-Saunders Diaphragm Valves two years ago, there have been no leaks, sticking, or need for costly regrinding. There have been no diaphragm replacements, either. This — plus the fact that the original plug cocks cost almost twice as much as the Grinnell valves — is why this 7-UP plant decided to standardize on Grinnell-Saunders Valves *throughout!*

Grinnell-Saunders Food and Beverage Valves are normally furnished with stainless steel bodies, white enameled bonnets, and with diaphragms of synthetic white rubber, which impart no taste or color — and which are undamaged by cleaning solutions. Other body, lining and diaphragm materials available to meet a variety of service conditions.

For further facts, write Grinnell Company, Providence 1, Rhode Island.

Open



Closed

- Diaphragm lifts high for streamline flow in either direction
- Diaphragm presses tightly to effect positive closure
- No packing glands to need attention
- Diaphragm easily replaced without removing valve body from the line
- Wide choice of body, lining and diaphragm materials

GRINNELL

Pipe, Fittings, Valves, Hangers, Heating and Piping Supplies • Branch Warehouses and Distributors from Coast to Coast

FE SERVICE CENTER

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Books ..... p. 151
Patents ..... p. 152
Advertisers Index ..... p. 154
Classified ..... p. 156
Reader Service ..... Back of Book

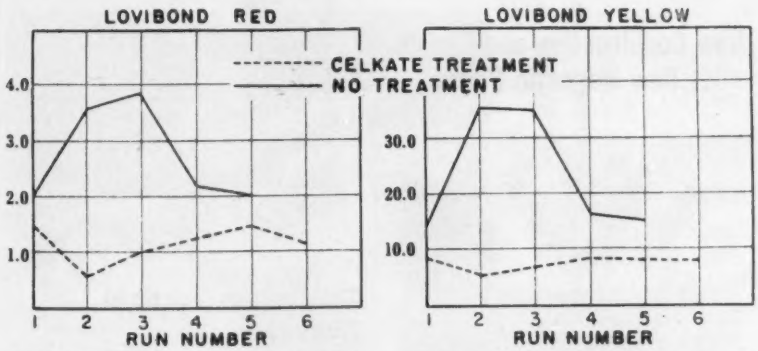
NEW EQUIPMENT & SUPPLIES

Controls Pest Birds

Complete control of pest birds is claimed for a new technique employing a 30-in. perch containing a control solution. Birds landing on the perch die within 24 hr.

Perches are refilled only twice each year, thereby maintaining the building bird-free at minimum expense. Also available is a solution for eliminating birds from otuside of building.—*Rid-A-Bird Inc., Muscatine, Iowa.*

Circle 251 on Reader Service Card



SHARP COLOR REDUCTION results from treatment of dry-rendered lard with new silicate adsorbent. Companion product cuts free-fatty-acid content.

Adsorbents Up Fat-Processing Efficiency

Production of high-grade fats and oils may be upped with use of two recently developed synthetic silicates. Used either separately or in combination (with or without conventional carbons and clays), they simplify handling in reduction of color and free fatty acids content, also cut equipment maintenance.

First product is a light-colored magnesium silicate powder (Celkate T-21). In use, adsorbent contacts material for an optimum time and at selected dosage level, then removed in the conventional manner. Accompanying graphs show results of actual plant runs of a dry-rendered lard using 0.15% adsorbent at 175F. with 15-min. contact time. This silicate is also being used to reduce color of frying oils.

Other product is a calcium silicate (Micro-Cel T-13), particularly recommended for adsorbing free fatty acids. It is slurred into the oil and removed by filtration.

Amount of acid adsorbed varies with type of oil and processing temperature. Tests indicate 1½-3 oz. of acid are adsorbed per pound of adsorbent. For example, treating 1,000 lb. of lard with 12 lb. of adsorbent will reduce the FFA from 0.6% to 0.45% at a cost of about 12¢ per 100 lb. of fat.—*Johns-Manville Corp., Celite Div., 22 E. 40th St., New York City.*

Circle 252 on Reader Servic Card

Versatile Plastic Shipper Has Disposable Liner

This collapsible plastic container enables two-way hauling of either solids or liquids in the same container without danger of contamination. For example, grain may be shipped in one direction, syrup on the return trip.

Termed especially valuable for less than truckload or carload quantities, unit (Flexi-Drum) consists of a thin, disposable plastic liner inside a plastic body which can be handled by conventional equipment. Containers can be used interchangeably for oils, dairy and milling products, juices, and beverages.

Cylindrical body has molded fiberglass-reinforced plastic top and bottom shells and flexible plastic-coated fabric sidewalls which collapse, accordionlike, into the top and bottom. Cost of disposable liners reportedly is less than either the cost of cleaning steel drums or replacing one-way paperboard containers.

Units are filled through quick-opening orifices in top and bottom. Complete discharge of solids is provided by funneling action of the liner. Empty containers, regardless of size, collapse to a height of 12 in. with top and bottom protecting the fabric body. They are all 47 in.

ERIEZ

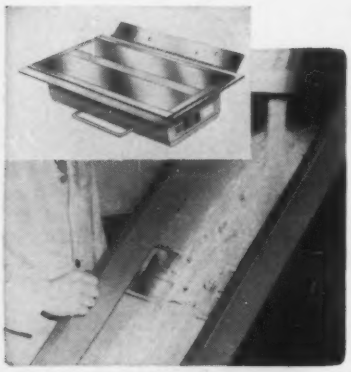
NEW SERIES 17

Erium-powered*

PLATE MAGNETS

Greatest magnetic strength per dollar ever offered!

New Construction and Design ...New Magnetic Power



Protect your machinery and production. Safeguard your product quality and reputation. Eriez Series 17 Plate Magnets can pay for themselves many times over in many ways.

All welded steel and stainless steel construction is standard on these all-new plate magnets in every model. They're more compact and rugged than previously available models . . . and designed to assure ease of installation in chutes, spouts, ducts, feed tables, and housings; and for suspension over screens, moving conveyors, etc. Wide mounting flange for better, easier dust-tight installation. Uniform dimensions for greater interchangeability.

Tops for performance because of their Erium-powered* magnetic circuit providing intense concentration of power in the most essential areas (three strengths available).

**Erium—an exclusive, high quality permanent magnetic power source specifically designed and energized by Eriez.*

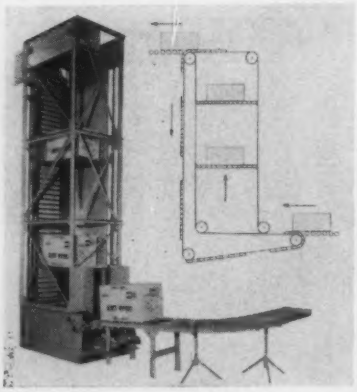
Here's the finest, most versatile plate separator performance at the lowest dollar cost. Write today for complete data on Series 17 Plate Magnets to:

Eriez Mfg. Co., 106-KA Magnet Drive, Erie, Pa.

ERIEZ

dia. for maximum payload of 11,000 lbs., and are offered in capacities of 250, 500, and 800 gal. — *Highway Trailer Industries, Inc., 250 Park Ave., New York City.*

Circle 253 on Reader Service Card

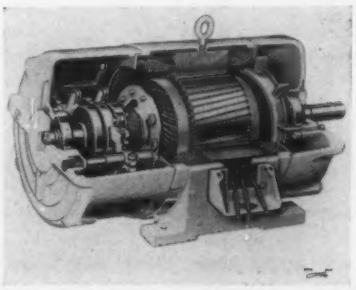


Continuous Vertical Conveyor

With the continuity of an endless belt, this vertical conveyor loads and unloads itself automatically. To achieve this, its horizontal carrying flights fold to assume a space-saving vertical position for the return trip.

Unit (Escaveyor) is compact, thus is particularly recommended where space limitations precludes use of inclined conveyors. It may be used in either up or down service, and is available in a wide range of capacities. — *Standard Conveyor Co., North St. Paul 9, Minn.*

Circle 254 on Reader Service Card



Redesign Cuts Size, Weight

New design of this wound-rotor motor offers substantial reductions in both size and weight. Yet it retains a durable cast iron housing and end bracket construction with large grease reservoirs for maxi-

ACCURATE AUTOMATIC FEEDING

from ounces to tons per hour

ERIEZ

HI-VI

VIBRATORY FEEDERS

Only feeders with totally enclosed drive element as standard construction. A-C operated, electro-permanent magnetic drive

Continuous, uniform flow of feed of all sizes and shapes of bulk materials for blending, mixing, sorting, cooling, etc. Variable feed rate. Completely automatic, extremely accurate. Increases production, provides quality control, reduces maintenance and operating costs.

Fully enclosed drive element (standard—no extra cost) makes units dust and moisture resistant; ideal for sanitary applications. Break-resistant glass fiber springs • New patented magnetic drive provides greater feeding capacity than comparable size units • No rectifier needed • Simple installation • Factory pre-tested • Fully proved in plants everywhere

NOW AVAILABLE! . . . economical, specially constructed units for hazardous dusty locations . . . fully acceptable by Mill Mutual.

WRITE FOR FREE COMPREHENSIVE LITERATURE
Eriez Mfg. Co., 106-KB Magnet Drive, Erie, Pa.

ERIEZ

mum protection against shock and corrosion.

Rotor has both ends dynamically balanced for quiet operation, and end coils are banded with an epoxy glass fiber to eliminate shorts due to wire cutting the insulation. And latter provides superior protection against moisture, oil, dirt, weak acids, and abrasive dust.

Units can be furnished with open, drip-proof, or totally enclosed, non-ventilated enclosures for horizontal, ceiling, or sidewall mounting.—*Louis Allis Co., 427 E. Stewart St., Milwaukee.*

Circle 255 on Reader Service Card

Versatile Electric Counter

This low-cost 4-figure electric counter offers the speed, ruggedness, and dependability of larger types.

Designated Model 4-Y-9434, units are available for base mounting, top mounting, or panel mounting with a panel plate. Standard models make up to 600 counts per min. and operate on 115v. a.c., but counters are also available for operation on direct current. Typical applications include process and packaging equipment. — *Durant Mfg. Co., 1937 N. Buffum St., Milwaukee.*

Circle 256 on Reader Service Card

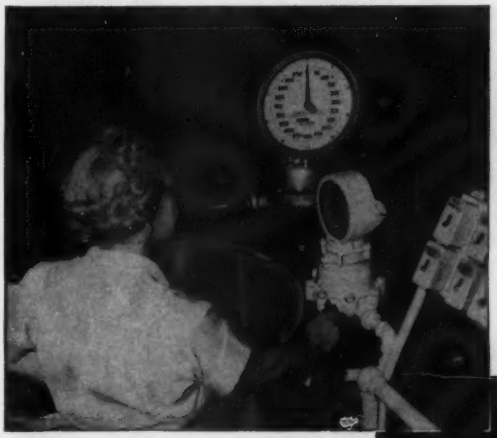
Heavy-Duty Bench Scale

With housing and platform of stainless steel, a new bench scale offers two important features for meat packing and allied fields:

First, scale is rust-free, which simplifies compliance with sanitary

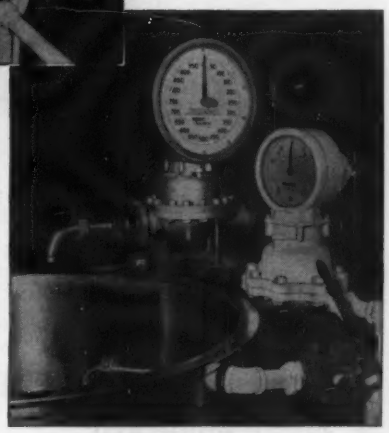
Every Batch of Old Dutch Salad Dressing the Same — in Consistency and Taste

Niagara Displacement Meters insure CONTINUOUS QUALITY



Ingredients of each batch are run in quickly . . . accurately with Niagara Meters in the Old Dutch, Inc. Plant, Blasdell, New York.

Close-up of Niagara Meters showing large vertical registers with easy to read figures for accurate measurement.



Old Dutch Salad Dressing has won wide acceptance for its palate-pleasing piquancy. Safeguarding the ability to maintain this flavor acceptance are two Niagara Displacement Meters, one for measuring the oil and the other the dressing mixture.

Prior to the installation of these Niagara Meters, it was necessary to completely remove all salad dressing from the premix tank before starting another batch. This was necessary because ingredients were measured by the dip stick method.

Now, correct amounts are metered to the tanks by the Niagara Meters regardless of amount of salad dressing left in the tank from previous batch. Result: Faster, accurate preparation of each batch for uniform quality and lower costs.

Let us show you how Niagara Meters can reduce *your* formulating costs. Mail coupon today.

BUFFALO METER COMPANY, Inc.
2910 Main Street, Buffalo 2, N. Y.

☐ Please send me additional information on Niagara Meters.
☐ Please have representative call.

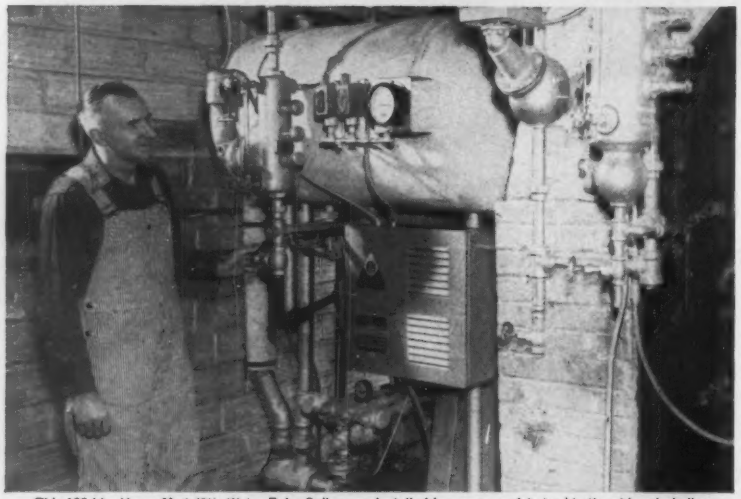
NAME_____

ADDRESS_____

CITY and STATE_____

BUFFALO METER COMPANY
INCORPORATED
2910 Main Street • Buffalo, New York

"NO MORE BOILER ROOM SPACE ...BUT WE NEEDED MORE STEAM"



This 125 bhp Vapor Modulātic Water Tube Boiler was installed in a narrow aisle beside the old main boiler.

The Kerr Conserving Company solved this problem with a Vapor Modulātic Water Tube Boiler

The Kerr Conserving Company of Portland, Oregon, makes berry juice concentrates used extensively by manufacturers of flavors and extracts, fruit syrups, beverages, etc.

A constant, dependable supply of high-pressure steam is essential to Kerr. Their concentrates are made to customers' specifications, and processing requires exceptionally careful control.

When the main boiler could no longer handle the steam load for their growing plant, an additional steam source became imperative.

In the words of Mr. Stuart Kerr:

"We looked into the feasibility of adding to our steam capacity by installing the conventional fire tube package boiler, but found that this would require building a new boiler room. This would have cost us about double what our Vapor unit cost installed in our present boiler room.

"We also compared other water tube steam generators with the Vapor unit, but we were attracted to the modulating feature of Vapor equipment as being more flexible to our steam demand.

"Our installation has shown us a considerable saving in fuel cost, and given us greater production from our vacuum concentrating equipment."

• Compact • Efficient • Economical

VAPOR MODULĀTIC WATER TUBE BOILERS
for processing, power, heating

Delivered fully assembled. Can be installed in hours—in spaces too small for ordinary boilers. No special foundation or stacks needed. Delivers full steam in five minutes from cold start.

BRIEF SPECIFICATIONS

Sizes	18 to 200 bhp
Pressures	5 to 900 psi
Fuel	Oil, Gas, or Combination
Floor Area (150 hp)	5 ft. x 8 ft.
Height (150 hp)	8 ft. 10 in.
Floor Load (max.)	150 lb./ sq. ft.
Operation	Automatic

Send coupon for free literature.

VAPOR HEATING CORPORATION, Dept. 59-J
80 E. Jackson Blvd., Chicago 4, Ill.

Please rush me your free bulletins on Modulātic Water Tube Boilers.

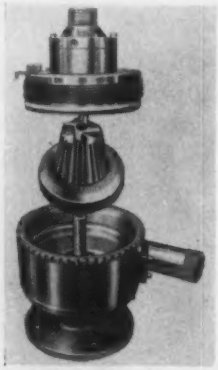
NAME_____
TITLE_____
FIRM_____
ADDRESS_____
CITY, ZONE, STATE_____

BHP REQUIRED_____
SAFETY VALVE SETTING_____
MINIMUM STEAM LOAD_____
MAX. STEAM LOAD_____
STEAM PRESSURE_____
TYPE OF FUEL_____

requirements. And prolonged use of water, salt, and brine does not affect scale life so maintenance is minimized.

Unit has capacity of 50 lb. with 1-oz. scale divisions, and platform size of 14⅝ x 19¾ in.—*Detecto Scales, Inc., 640 Park Ave., Brooklyn 5, N. Y.*

Circle 257 on Reader Service Card



4-Way Homogenizer Boosts Production

This unique processing unit combines the forces of impact, attrition, turbulence and ultrasonic cavitation for optimum and rapid homogenization.

Unit (Jet-Mogenizer) employs an out-of-register spline pattern which converts rhythmic flow into sustained eddying-pressure impulses. Restrictive venting of product provides continuous recycling that sets up violent turbulence. At peripheral velocity of 4,500 fpm., ultrasonic frequencies exceeding 20,000 cps. disperse the processed particles.

In test runs on fudge syrup, it produced 550 gph. with color estimated to be 25% darker than usually attained. This implies greater particle-size reduction and dispersion of cocoa solids. Machine was powered by a 3-hp. motor.

Four models are available with outputs ranging 100-500 gph., depending on product viscosity and flow characteristics. All interior corners are contoured to prevent product accumulation. For easy cleaning, water or solvent can be flushed through unit while it is running. — *Buschman Products, Inc., 114 E. 40th St., New York City.*

Circle 258 on Reader Service Card

For Food Processing

There's No Substitute for "Know How"...

. . . In the manufacture of *Clinton Products from corn* for use as ingredients for food applications

corn syrups • corn starches
dextrose • refined corn oil
lactic acid

See your Clinton salesman today.

CLINTON TECHNICAL SERVICE is freely available upon request.

CLINTON

CLINTON CORN PROCESSING COMPANY, CLINTON, IOWA

Atlas

ENGINEERED FLOORS END COSTLY MAINTENANCE

. . . provide lasting beauty!

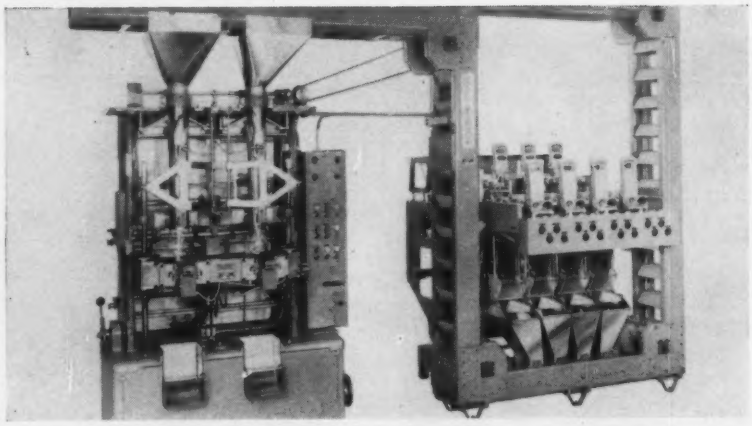
Atlas Food Plant Floors combine lasting beauty and long service with a construction that permanently ends costly maintenance. Since these floors are completely corrosion-resistant thay are not attacked by any food acids or harsh cleaning agents. Patching is never required.

Individually engineered to your exact specifications, they are not affected by expansion, contraction nor thermal shock. In addition, Atlas floors retain their attractiveness even in the face of severe impact or continuous truck traffic.

Let Atlas show you how to permanently solve your food floor problems.

Write for your copy of Bulletin 3-2.

ATLAS MINERAL
MERTZTOWN, PENNSYLVANIA



New Feed Mechanism Is Accurate to 0.01 Oz.

Because a scale can weigh only as accurately as the increment of product fed to it, this double-bucket scale receives an initial charge from a bulk supply, weighs it, and drops it into a second weigh bucket. A dribble feed then fills bucket to proper weight.

This action is particularly important when weight control can be measured only in the weight of a single unit of product, as with candy or nut meats.

Since bulk charge is delivered to first scale as first charge is being dribbled to second scale, each scale has a time period equal to the loading cycle. Moreover, by lengthening the dribble feed to 3 ft. and passing product over two individual vibrators, uniform dribble feed and precise product separation permit weighings with accuracy of plus one piece.

Accurate to 0.01 oz., unit is available for any product that can be weighed automatically. In conjunction with maker's automatic packaging machine, it delivers 60-70 accurately weighed packages per min.—*Hayssen Mfg. Co., Sheboygan, Wis.*

Circle 259 on Reader Service Card

Potato Sprout Inhibitor

Sprout Inhibitor provides permanent, low-cost treatment for potatoes in storage. Aerosol-dispensed product (Sprout Nig) is applied to potatoes stored in bulk or pallet boxes, but not in burlap bags. It can also be used directly on grading table provided potatoes are thoroughly healed with thick skins. Inhibitor (Isopropyl N-3-Chlorophenyl Carbamate) concentrates almost entirely on surface of potato and leaves no taste, odor, or color. A tolerance of 50 ppm. has been set by FDA.—Columbia-Southern Chemical Corp., One Gateway Center, Pittsburgh.

Circle 286 on Reader Service Card

DIAMOND CALCIUM CARBONATE

USP

Ask for quotations on this top-quality, low-priced, U.S.P. dense grade by one of the world's leading producers of calcium carbonates.

Shipped in 50-lb. bags from conveniently located warehouse stocks. Call or write today. Diamond Alkali Company, Union Commerce Building, Cleveland 14, Ohio. Sales offices in principal cities.

Diamond Chemicals

Equipment & Supplies

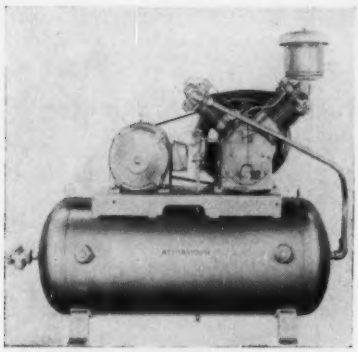
Rugged Steam Trap

Maximum resistance to corrosion, metal fatigue, and rough handling are advantages cited for this new line of thermostatic steam traps.

Models include high- and low-pressure types in pressure-balanced thermostatic and float-thermostatic designs. Unaffected by pressure, water hammer, and frost, their operation is maintained by a stainless-steel, bi-metal thermal element with universal joints, which responds only to temperature. Simple and efficient design minimizes steam loss in a wide range of applications including superheat service to 500F.

Pressure ranges for thermostatic traps are vacuum to 25, 65, and 125 psi., respectively; and 0 to 225 and 300 psi. For float-thermostatic types, pressure ranges are 0 to 75 and 150 psi., respectively.—*Farris Engineering Corp., MIL Div., 516 Commercial Ave., Palisades Park, N. J.*

Circle 260 on Reader Service Card

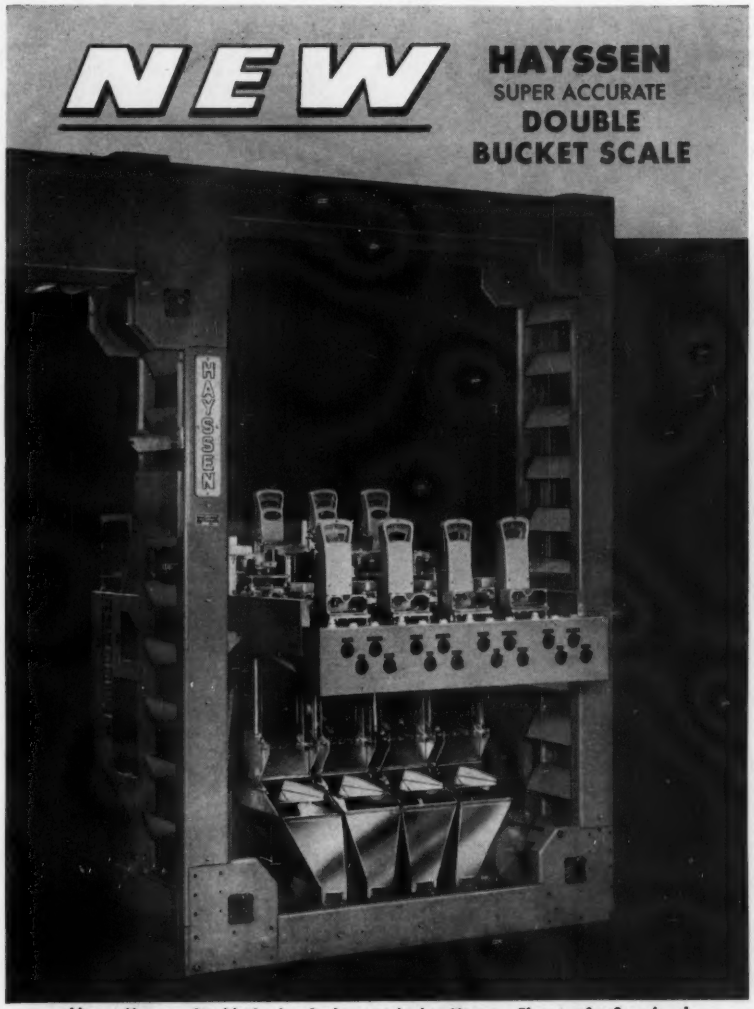


Compressor Redesign Offers Many Benefits

Important new features of this unit-type compressor include an unloading system for automatic loadless starting, and inlet valve unloaders for constant-speed operation.

Thus, drive motor may reach full speed before compressor starts. In addition, system guards against low oil level operation. Rated operating pressures for the Model 5YC with 10-hp. drive are 125, 175 and 250 psi. A unit is also available with 15-hp. drive for 175-psi. operation.—*Westinghouse Air Brake Co., Le Roi Div., Milwaukee.*

Circle 261 on Reader Service Card



Above: Hayssen Double Bucket Scales attached to Hayssen Elevator for floor level feeding. Scales dump product to elevator buckets for delivery to filling tubes.

OUTPERFORMS ALL OTHERS

An entirely new principle has been developed to make the new Hayssen Double Bucket Scale the most accurate net weight scale feed in the industry. Rugged, easy to adjust scales, two each for each head, can be floor mounted for convenience.

- **DOUBLE WEIGHING** — Bulk charge is weighed at top scale, then transferred, slightly underweight, to second scale. Dribble trays feed second scale to bring charge to proper weight before dumping to filling equipment.
- **ONE-PIECE ACCURACY** — Extended dribble trays, each 30" long, allow one-piece feeding for final weighing. Packages can never be underweight.
- **FULL CYCLE FEEDING** — A full filling cycle is allowed for both bulk charge feeding and dribble feeding, thus allowing accurate weighing at greater speeds.
- **AVAILABLE FOR ALL HAYSSEN COMPAK MACHINES** — The new Double Bucket Scale can be attached to any existing Hayssen Compak Packaging Machine. It is available for both single tube and double tube machines.

first in Automatic Packaging since 1910

HAYSSEN

MANUFACTURING COMPANY • DEPT. FE 121 • SHEBOYGAN, WISCONSIN

Offices in principal cities. Check your phone directory.

Atlanta • Boston • Chicago • Columbus • Dallas • Denver • Detroit • Evansville, Ind. • Jackson, Miss. • Kansas City Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto • Vancouver

NEW MIXER

Get set to topple some traditions in fluid-mixing ease and economy

You won't have to lubricate it for five years.

You can't overload the gear drive.

It comes with a chemical plant motor as *standard*, at no extra cost.

You don't need three hands to remove the shaft.

And it mixes fluids like no portable mixer you've ever seen. Delivers up to 45% more fluid flow in gear-drive models. Higher impeller head in direct-drive models. Actually lets you handle many mixing jobs with a *smaller* mixer drawing *less power.*

That's just a sampling of the new LIGHTNIN Portable Mixer. It's ready—in sizes from ⅛ to 3 hp. And the price is right.

Your LIGHTNIN Mixer representative will be glad to show you why you can use it to mix fluids better—and at lower cost—than ever before. You'll find him listed in Thomas' Register of American Manufacturers and in the yellow pages of your telephone directory. Call him today. Or write us for descriptive Bulletin B-520.

SHOCK OVERLOADS can't damage the mixer drive. In gear-drive models, GripSpring assembly between gear and drive shaft lets gear slip if overloaded more than 50%. It's a safety feature you never could get before in a portable mixer.

IN FIXED MOUNTINGS, TOO. Get the same all-new advantages in permanent-mounting LIGHTNIN Mixers for open and closed tanks. A complete line, sized from ¼ to 3 hp. For details on these, send for Bulletin B-521.

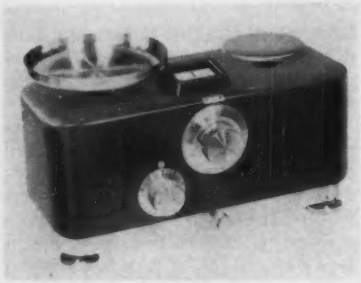
"Lightnin® Mixers"

MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc., 143-K Mt. Read Blvd., Rochester 3, N. Y.

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 19, Ont.

Equipment & Supplies



Eases Lab Weighings

Increased speed and accuracy in laboratory weighings of up to 200 gm. are reported with use of this new two-dial weight-loading balance.

Called DLT-3, it combines weight loading with fine dial weighing to save time. Without picking up or moving a single weight, operator can add up to 9 gm. in 1-gm. increments. Turning a second dial for fine weighing permits instant readings down to 0.005 gm. Both dials can be turned without arresting the balance to obtain quick readings.—*Torsion Balance Co., Clifton, N. J.*

Circle 262 on Reader Service Card

New System Automates Production Control

Advanced control concepts incorporated into a new system of automatic production recording reportedly cuts downtime substantially.

System (Productograph) is keyed to a console receiving unit in a production control center. Impulse transmitters, such as limit switches, flow meters, and photocells, plus a call station next to production units, provide instantaneous and continuous communication with console operator. Through this telecommunication system, machine operating time, downtime, and causes for downtime are automatically recorded audio-visually on a special graph and on a tape recorder. And operators can immediately inform production control supervisor of cause of stoppage.

In addition, nominal and actual output are automatically tallied, both on electrical counters and on linear counters. Latter provide a visual record of quantity of items produced and production time elapsed. Thus, supervisor can sched-

(Continued p 142)

SPICE
IS
SPICE
...BUT

STANGE

makes seasoning a science

The ability to create and produce a seasoning to meet your exact needs, plus the assurance that it is in compliance with Food Additive Laws—*IS A SCIENCE AT STANGE.*

The ability and versatility to produce seasonings such as Soluble, Liquid, 50-A Microground® and Ground for all types of finished products *IS A SCIENCE AT STANGE.*

The technical skill to control the flavor potency of each and every shipment to precise specifications—*IS A SCIENCE AT STANGE.*

The talent to create . . . the skill to produce . . . and the flexibility to fit your needs—*IS THE MOTTO AT STANGE.*

WM. J. STANGE CO., Chicago 12, Ill.
Paterson 4, N. J.—Oakland 21, Calif.
Canada: Stange-Pemberton, Ltd., Toronto, Ont.
Mexico: Stange-Pesa, S. A., Mexico City

50-A Microground Spice® NDGA Antioxidant® Ground Spice
Cream of Spice Soluble Seasoning®
Peacock Brand Certified Food Color®

PRINTED IN U.S.A.

ule production more efficiently.

System's output can be fed directly into accounting equipment, and, in the future into maker's optical scanners, unique reading machines which bridge the information feeding gap in automatic data processing. It will also enable certain installations to compute factory cost work, payrolls, and other accounting functions. Incentive payments can be computed and paid on the recorded information.—*Farrington Mfg. Co., Needham Heights, Mass.*

Circle 263 on Reader Service Card

Pre-Fabricated Building Is Easily Erected

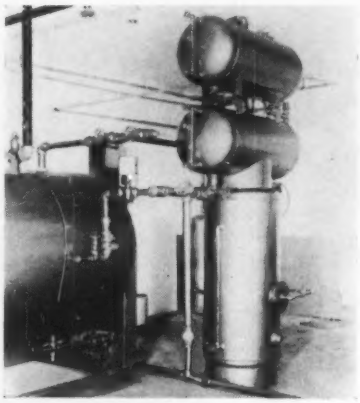
A new multi-purpose pre-fabricated steel building offers a low-cost structure for plant or warehouse use. It is fireproof, rust-resistant, and rodent-proof.

All-steel framing of the weather-tight unit (Spartan) goes up fast because it's pre-cut and pre-formed to fit together easily. No perimeter foundation is needed and structure requires a minimum of maintenance.

Specifications: Standard 12-lb. snow load and 15-lb. wind load, or 30-lb. snow load and 20-lb. wind load; widths of 12-ft. multiples, enabling buildings up to 72 ft. wide; lengths starting at 32 ft., in multiples of 16 ft.; heights of 10, 12, and 14 ft.

Construction provides for any combination of sliding and walk-in doors, skylights, windows, and ventilators, thus simplifying individual planning for specific needs and future expansion. — *Martin Steel Corp., Mansfield, Ohio.*

Circle 264 on Reader Service Card



Curbs Condensate Loss

Complete elimination of condensate flash loss—particularly important in high-pressure processes is reported for this new high-temperature condensate-return system.

Known as HT Boiler Feeder, it preheats makeup and condensate in a special reservoir tank to deaerate feedwater to well below the 0.03 cc. per liter required to control oxygen corrosion of boiler surfaces. In addition, impressive fuel savings are cited for the gravity-flow system. —*H. T. Boiler Feeder Co., Phoenixville, Pa.*

Circle 265 on Reader Service Card

Electronic Thermometer Gives Remote Readings

Temperature readings from seven or more, remote or hard-to-get-at places are provided by a new electronic thermometer.

Rotating a built-in switch gives

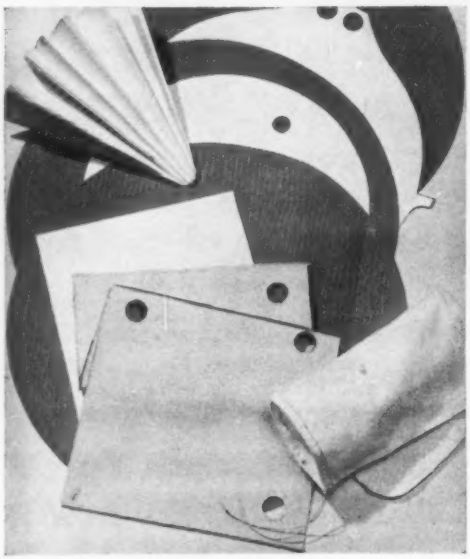
Need Filter Materials NOW?

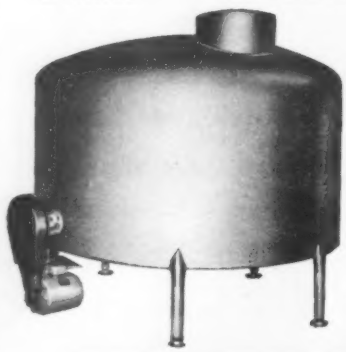
FILPACO Stocks most items for Immediate Delivery!

If you need quality filter materials at a saving, specify "FILPACO" as so many processing and manufacturing firms in your industry are doing.

Filter paper in complete range of grades available . . . samples furnished for testing or send us your materials for testing. Also: filter cloth, cotton, wool, felt, glass, Orlon, Dynel, Saran, silk, Dacron, Polyethylene, Filyon, Nylon and others . . . cut and sewn to your required sizes and shapes.

—Your inquiry is invited—





FILPACO STAINLESS STEEL TANKS

. . . for storage and mixing in all styles . . . vertical, horizontal and rectangular . . . open or closed . . . in stock or to your specifications.

We manufacture an extensive line of filters, filter materials, tanks, mixers and fillers.

FILPACO

FILPACO INDUSTRIES
THE FILTER PAPER CO.
2450 S. Michigan Avenue, Chicago 16, Illinois

instant readings from any point. Small thermal sensitive probes, placed wherever temperature readings are desired, quickly assume the surrounding temperature. They are available encased in epoxy resin for immersion in liquids, gases, or solids.

Unit (Frontier), enclosed in steel case with baked enamel finish, is 5½x7x2 in. It plugs into any 110v. a.c. outlet for continuous operation. — *Frontier Development Co., Box 1582, Des Moines 6, Iowa.*

Circle 266 on Reader Service Card

Calibrated Mop Bucket

New bucket takes guesswork out of mixing cleaning solutions correctly, also eliminates extra measuring cups and pails. Buckets are ribbed for additional strength, and each rib is a graduation that tells at a glance how many gallons they contain.

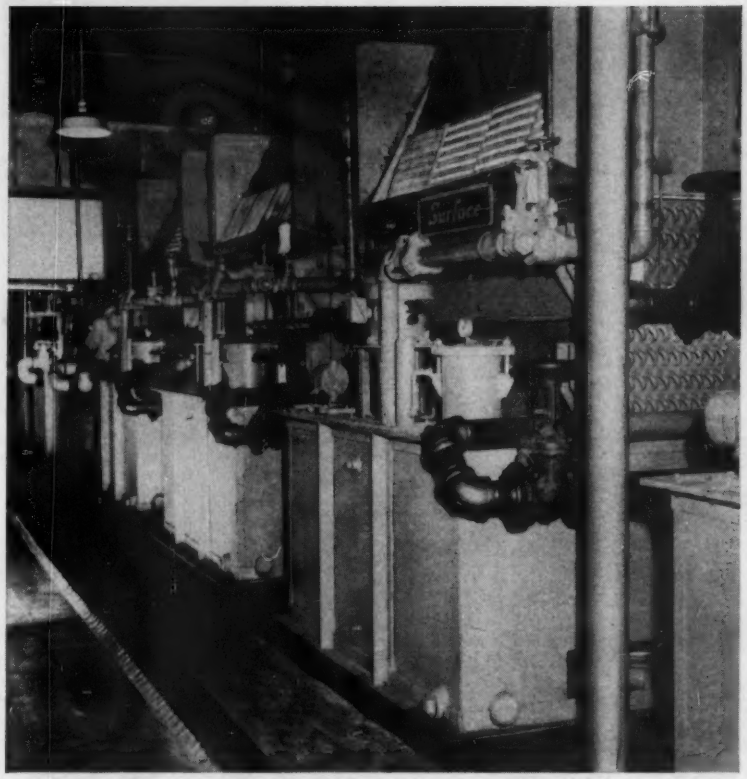
Available in 4-, 8-, and 11-gal. sizes, models include bucket alone, bucket mounted on ball-bearing rubber-wheeled casters, and bucket on casters with non-marking rubber bumper. All units are hot-dip galvanized, and absence of bolt and rivet holes eliminates leaks or rust. —*Geerpres Wringer, Inc., Muskegon, Mich.*

Circle 267 on Reader Service Card

Speed-Regulated Vibrator

Now available is an electric vibrator with companion speed regulator that varies vibration freqency from 1,500 to 9,000 per min. and impact intensity from 9 to 300 lb.

Vibrator (RC-2) is designed for moving or settling materials wherever vibratory force must be



120 GRAINS CUT TO 45

IN 200,000 cfm OF AIR

WITH 85° TOWER WATER

Without Kathabar, this job would have taken 1800 tons of refrigeration, at about 35F and reheating air from about 45F to 98F! With Kathabar the job took 63 hp instead of 2000. Ask the men who have seen Kathabar Type C units serve for years with practically no maintenance. Write for specific information.

Surface

SURFACE COMBUSTION

Division of Midland-Ross Corporation MR

2382 Dorr St., Toledo 1, Ohio

Send facts on Kathabar systems for the following application:

name and title.....

company.....

street.....

city.....*zone*.....*state*.....

CIRCLE 143 ON READER SERVICE CARD 143

THE LAST WORD IN
Sanitary Pumping

There's nothing more to say! This new "Sanitor" is the last word in strictly sanitary delivery of dairy and food products. Opposite ports are new with Viking . . . and now, by merely removing one bolt, pump can be turned from horizontal to vertical port position. This new "Sanitor" has the same positive, smooth delivery at slow speed that made "Sanitors" famous. It still eliminates the excessive churning, aerating and recirculating of high speed pumping. And it's available in three sizes with capacity range of 8 to 90 G.P.M. and all meet 3-A sanitary standards. When you need a variable capacity sanitary pump, remember the Figure 8177 "Sanitor" is the last word.

VIKING "SANITOR" variable capacity pumps

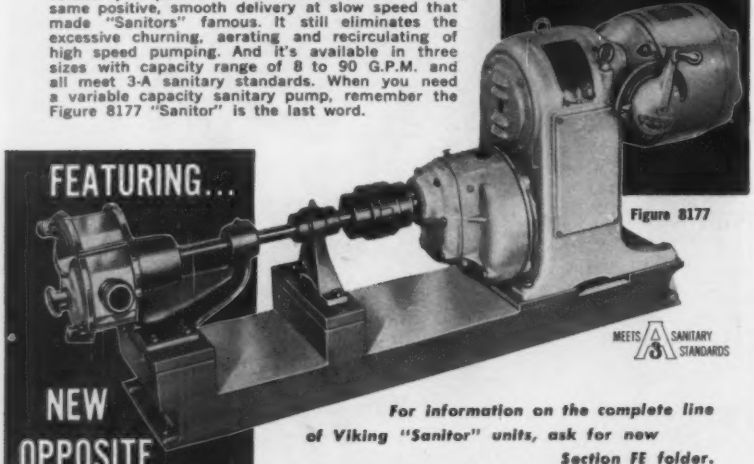


Figure 8177

FEATURING...
NEW OPPOSITE PORT CASINGS

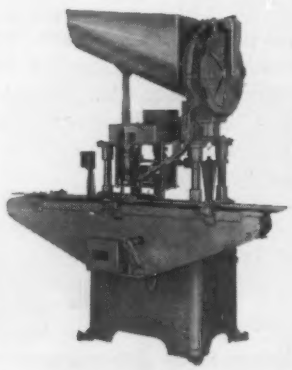
MEETS 3-A SANITARY STANDARDS

For information on the complete line of Viking "Sanitor" units, ask for new Section FE folder.

VIKING PUMP COMPANY
Cedar Falls, Iowa, U.S.A.
In Canada, It's "ROTO-KING" PUMPS
See Our Catalog In Sweet's Plant Engineer's File

CIRCLE 167 ON READER SERVICE CARD

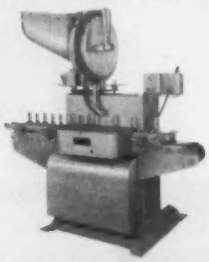
RESINA
fully automatic
SCREW CAPPER



The RESINA line of CAPPERS include models for sorting, feeding and applying a great variety of caps to bottles, jars or cans from ½ ounce to gallons. Speeds available up to 120 per minute.

TOPS THEM ALL

fully automatic
FITMENT APPLICATOR



Automatically selects plastic fitments (solid or perforated) with or without lift tabs and orients them into a chute. Passing container picks up fitment which is then snapped on the container. Speeds available up to 120 per minute or higher.

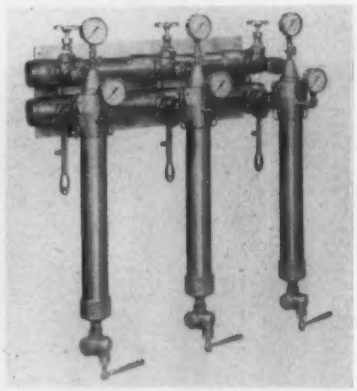
Descriptive literature and specifications on request.

RESINA AUTOMATIC MACHINERY COMPANY, INC.
572 SMITH STREET • BROOKLYN 31, NEW YORK

CIRCLE 144 ON READER SERVICE CARD

quickly regulated and accurately controlled. Regulator can be conveniently installed even when vibrator itself is inaccessible. Latter operates on a rotating-weight shaft principle. Mounting feet are integrally cast with frame and may be bolted to structure being vibrated, or bracket mounted.—*Cleveland Vibrator Co., 2828 Clinton Ave., Cleveland.*

Circle 268 on Reader Service Card



Space-Saving Filters

Quick-coupling, compact, and lightweight, this wall-mounted filter assembly efficiently handles a variety of liquids—thin or viscous, hot or cold.

Because units are quick-coupling, they may be disconnected from the line, serviced, and replaced in 1 min.—no tools required. Filters may be backwashed and blown down "on the run." They are rated 5-350 gpm., 10-700 mesh, pressures to 200 psi., temperatures to 450F. Available in a variety of metals and in parallel assemblies of 2, 3, or 4.—*Ronningen-Petter Co., Vicksburg, Mich.*

Circle 269 on Reader Service Card

New Dairy Filler Handles All Bottle Sizes

The rapidly expanding market for large-family glass milk containers has sparked a new type of vacuum filler for daries.

Stainless unit (Universal Filler) handles all bottle sizes from ½ pint through full gallon. Simple construction allows quick, easy changeover for various bottle sizes

USE
JEFFERSON
U.S.P.
PROPYLENE
GLYCOL

Most Versatile Polyol for Use in Foods, Flavors and Extracts

U.S.P. grade propylene glycol has low toxicity and excellent solvent, hygroscopic and preservative properties which make it preferred in a great variety of food processes. Food flavor, color or emulsion solvent; flavor extractor; humectant in packaged food products . . . these are a few of the proved applications for U.S.P. propylene glycol.

For helpful technical service or prompt delivery-price information, write to Jefferson Chemical Company, Inc., 1121 Walker Avenue, P. O. Box 303, Houston 1, Texas.

JEFFERSON CHEMICALS

Houston • New York • Chicago • Cleveland
Charlotte • Los Angeles

CIRCLE 168 ON READER SERVICE CARD

Equipment & Supplies

without tools. Other features: Gravity-vacuum filling valve, minimum of rubber in contact with product, simplified star wheel timing, hydraulic raising and lowering system, accurate and rapid filling. —*Mojonnier Bros. Co., 4601 W. Ohio St., Chicago.*

Circle 270 on Reader Service Card

BRIEFS

One-Piece Plastic Bin of reinforced fiberglass simplifies processing, shipping, and storing of meats. MID-approved unit is easily steam-cleaned, weighs only 130 lb., has capacity of 33.5 cu. ft. Nesting of bins saves storage space.—Tee-Pak, Inc., 3520 S. Morgan St., Chicago.

Circle 271 on Reader Service Card

Ultra-Sensitive flame-ionization detector kit and amplifier for gas chromatography unit greatly extends its detection range. Complete kit includes flame detector, air pump, special air filter, analytical column, and necessary connections. —Wilkens Instrument & Research Co., Box 313, Walnut Creek, Calif.

Circle 272 on Reader Service Card

Metal Detector locates ferrous or non-ferrous metal particles in foods on conveyor belts up to 3 ft. wide. Unit (Model 200A) is unaffected by severe changes in ambient operating conditions.—Electro-Mechanical Research, Inc., Princeton, N. J.

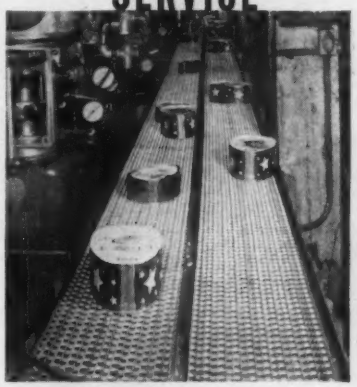
Circle 273 on Reader Service Card

Hand-Adjustable Toggle Clamps, for use with Tri-Clover ferrules, offer leak-tight joints that withstand 100-lb. pressure. Units have unique locking device, connect and disconnect quickly, and are available for 3, 4, and 6-in. tubing.—Thermovac, Inc., 816 E. Hazelton Ave., Stockton, Calif.

Circle 274 on Reader Service Card

New Membrane Filters, named S/P Particel, offer fast identification and counting of food bacteria. Pore sizes of special cellulose employed range 0.2-10 micron. Smaller particles pass through, larger ones remain on surface for

LA PORTE
FLEXIBLE STEEL
CONVEYOR BELTS
COST LESS
TO INSTALL
STERILIZE
SERVICE



More and more food plants are installing La Porte Flexible Steel Conveyor Belts to offset rising production, maintenance and replacement costs. Their sturdy, durable steel construction prevents stretching, resists impacts, wear, heat and cold. The flexible, open-mesh design assures a positive drive on the La Porte Drive Sprocket, permits the free circulation of air and liquids around products in process, also saves time sterilizing with a steam gun or scalding water. La Porte Belts provide a perfectly flat surface for the safe handling of glass, tin or paper containers empty or filled, including shipping cartons. Besides, these long-wearing belts require little maintenance.

If you freeze, can, dehydrate, pickle, package, store or ship food, it will pay you to use La Porte belts. Available in ½" x 1", or 1" x 1" in any length and practically any width. Ask your mill supplier or mail coupon for illustrated literature and prices.

MAIL COUPON TODAY

LA PORTE MAT & MFG. CO.
Box 124
La Porte, Indiana

Please send free literature on your Conveyor Belt.

NAME_____

ADDRESS_____

CITY_____ STATE_____

CIRCLE 145 ON READER SERVICE CARD

Hot Fudge... then *Quick* Release

Patapar® VEGETABLE PARCHMENT SMOOTHS OPERATIONS AT JAMES O. WELCH COMPANY

Over 3,000,000 pounds of fudge per year—at temperatures ranging from 140 to 180 degrees F.—are being poured upon Patapar-lined tables at the James O. Welch Company, Cambridge, Mass. And, necessarily, each batch separates easily and cleanly after cooling.

Patapar was selected to replace a waxed kraft because of its superior release characteristics, economy and purity. This Vegetable Parchment has a dense, fiber-free surface which cannot, by its nature, adulterate the fudge. Other inherent characteristics of Patapar provide high strength and resistance to penetration.

If you have an operation requiring quick release, purity, and resistance to penetration by fats, sugars, oils, or moisture, you're welcome to samples of Patapar. Send for free information and sample package of Patapar Releasing Parchments.

"Something Special in Papers"

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BRISTOL, PENNSYLVANIA
Sales Offices: New York, Chicago • West Coast Plant: Sunnyvale, Cal.

Equipment & Supplies

direct microscopic examination.—Scientific Products, 1210 Leon Pl., Evanston, Ill.

Circle 275 on Reader Service Card

Heavy-Duty Hose, with white Neoprene cover, handles 75-psi. hot water and 40-psi. steam (287F.). Called WH Creamery hose, it is available in ½, ¾, and 1-in. diam.; 25 and 50-ft. lengths.—Goodyear Tire & Rubber Co., Akron, Ohio.

Circle 276 on Reader Service Card

Dual-Purpose Glue Gun for automatic packagers cuts glue costs, provides efficient bonding regardless of machine speed. Roller-type unit (FF) is quickly changed from strip-action to ribbon-coat gluing.—John P. Fox Co., 1107 S. Mountain, Monrovia, Calif.

Circle 277 on Reader Service Card

Compressor Control Panel monitors operation of up to five electric-motor-driven compressors, keeping only those required in operation. Control may be manual or fully automatic.—Clark Bros. Co., Olean, N. Y.

Circle 278 on Reader Service Card

NEW SUPPLIES

Floor-Repair Material, called Crack-Fix, is new finely ground, plastic-base aggregate for jiffy resurfacing of breaks in concrete, asphalt, and wood. Applied right from container, it speedily sets so traffic can be resumed immediately.—Revere Chem. Corp., University Center Station, Cleveland.

Circle 279 on Reader Service Card

Lithium-Soap Grease offers superior rust protection for all types of precision instruments and bearings over temperature range of —75 to 300F. Product (Anderol L-793) is compatible with ordinary lubricants, non-gumming, and highly stable.—Lehigh Chemical Co., Chestertown, Md.

Circle 280 on Reader Service Card

Non-Slip Floor Coating curbs accident hazards, guards against deteriorating action of water, fats, grease, and many acids. Product (Abrasive Overlay) is easily trow-

eled over metal, wood, concrete, and mastic. It sets to accommodate foot traffic in 12 hr., truck traffic in 24 hr. No primer, sealer, or etching required.—Paramount Industrial Products Co., 2717 E. 75th St., Cleveland.

Circle 281 on Reader Service Card

Easy-to-Use Descaler, containing sulfamic acid and inhibitors, dissolves scale without corroding or damaging metal surfaces. Crystalline material (Scale-Cleen) is nonirritating to skin, does not produce acid fumes when dissolved in water, and has built-in color indicator that shows when acid is spent. —Dearborn Chemical Co., Merchandise Mart Plaza, Chicago.

Circle 282 on Reader Service Card

INGREDIENTS

New Mushroom Flavoring, spray-dried or liquid, is offered for use in gravies, meat products, salad dressings, and cheese dips. Extracted from imported mushrooms, product (Mushroom Concentrate) is free of microorganisms and its stability eliminates conventional storage, fumigation, and cleaning problems. Concentrate reportedly has 4-5 times the flavor strength of imported mushrooms, mixes easily with water and dilute alcohol, and disperses readily in fats and oils. — Fritzsche Brothers, Inc., 76 Ninth Ave., New York City.

Circle 283 on Reader Service Card

Tapioca Thickener eliminates cookup when unthawed frozen fruit is incorporated in pie fillings. Fruit is coated and sealed by product (Redisol #4) to prevent loss of juice. Thickener's blandness curbs masking of fruit flavor, and controlled gel power provides uniform filling viscosity plus high freeze-thaw stability. —Morningstar-Paisley, Inc., 630 W. 51st., New York City.

Circle 284 on Reader Service Card

Citric Acid, U.S.P., produced by rapid deep-fermentation of cane blackstrap molasses, is available in bag or carload quantities. — Bzura Chemical Co., Inc., Keyport, N. J.

Circle 285 on Reader Service Card

3 good reasons why leading food processors select DAY equipment

1. for top operating efficiency; highest quality of product, lowest production costs
2. for sanitary construction and ease of clean-up between batches
3. for excellence of design and manufacture—providing long, trouble-free service; minimum maintenance

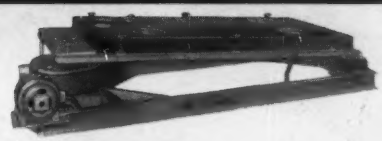
DAY RIBBON BLENDERS and MIXERS

give fast, efficient blending and mixing of heavy-bodied powders, pastes, semi-pastes, granular or liquid materials. Available in a wide range of tank and agitator designs. Capacities from 7.5 to 3850 gallons.

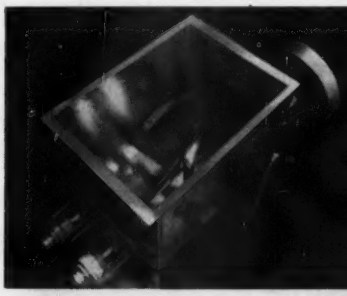
Used for: Flavored beverages; salt; spices; milk powder; dextrine; starch products; gelatin; tomato products; cake mixes; chocolate and cocoa; puddings; cereals; animal feeds; meat products and sauces; doughnut flours, etc.

DAY RO-BALL SIFTERS

with super-active ball cleaners, lead the field for fast, thorough sifting of wet or dry ingredients. Models for 2, 3, 4, or 5 separations. Often combined with DAY regulating feed hoppers and material conveying equipment.



Used for: Flours; sugar; salt; dry milk; cocoa; corn products; starch products; seasoning; cottonseed & soybean meal; semolina; candy; prepared mixes; chewing gum; powdered eggs; soup products; animal feeds; tobacco, etc.



DAY DOUBLE-ARM MIXERS

are made in various capacities and models to meet every requirement for light, medium and heavy-duty kneading and mixing. They give fast, thorough dispersions and are the choice of leading food processors.

Used for: Confectionery products; mixed meats; chocolate; cake mixes; icing; dog food; shredded fish products, etc.

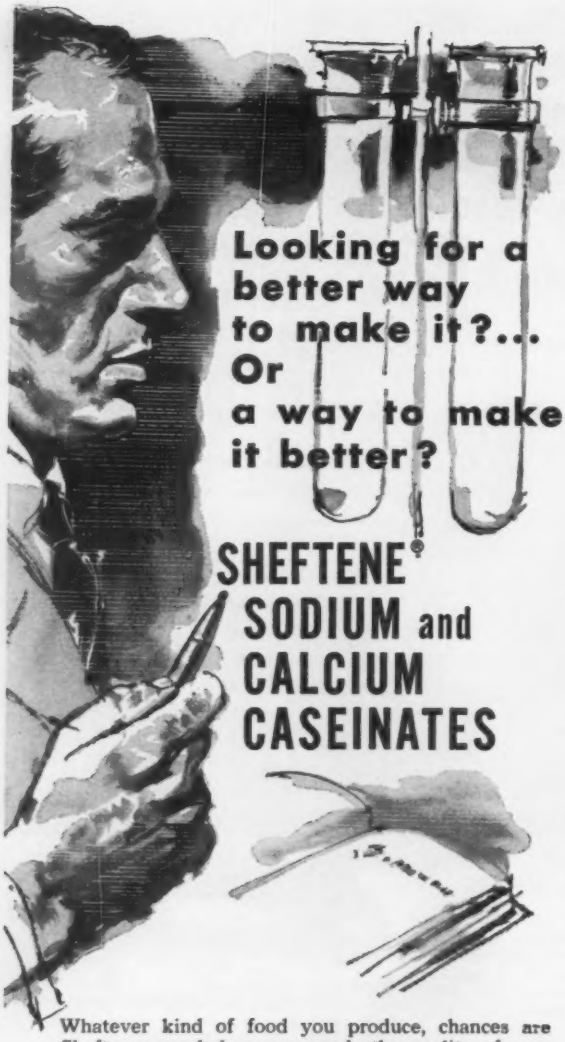
DAY also builds a wide range of other equipment, such as mechanical and airmatic materials conveying systems; homogenizers; hoppers and scales; 3-roll dispersion mills; water coolers, etc. When you select DAY, you choose equipment preferred and proved in thousands of the nation's leading food processing plants. Call in a DAY field engineer, or write direct, for detailed information on your equipment requirements.

The J. H. DAY Co.

Division of The Cleveland Automatic Machine Co.

Quality Mixing, Blending, Milling and Sifting Machines since 1887

... Beech Street, Cincinnati 12, Ohio



Whatever kind of food you produce, chances are Sheftenes can help you upgrade the quality of your product or even improve its manufacturing process ... Or both!

Primarily Sheftenes are known as a high-quality protein supplement, rich in lysine and other essential amino acids. But they offer a wide assortment of functional advantages as well.

Here's just a partial list:

Bakery: As a high-protein ingredient for bread.

As a volume controllant to insure proper texture and uniformity of doughnuts, cookies and waffles.

As a fat-blocking ingredient to prevent excessive absorption of fat in frying of doughnuts.

Dairy: As a stabilizer and emulsifier in milk shake bases.

As a low-calorie stabilizer in ice cream for diabetics.

As an agent to assure the keeping quality of ice cream.

Cereals: As a supplement to improve the "amino profile" of grain cereal products.

Infant Foods: As a high-quality, high-protein supplement in infant and special dietetic products.

For samples and technical data write Dept. FE-1060.

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Norwich, N.Y.
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JUST OFF THE PRESS

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Gas Regulators. Includes specs and illustrations of industrial gas units and portable manifolds. 16p.—Linde Co., N.Y.C. (314)

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Water Treatment. Details Nalco 82 method for treatment of recirculating cooling water and process systems. Four reprints of studies presented in subject area to engineering groups also available. 4p. plus reprints—Nalco Chemical Co., Chicago, (350)

Water Consulting Service. Discusses range of industrial water problems—from pre-treatment to waste disposal. 24p.—Hall Labs, Div. of Hagan Chemicals & Controls, Inc., Hagan Center, Pittsburgh 30. (Request on company letterhead.)

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Fillers. Details semi solids models with specs and illustrations. 4p.—F. L. Burt Co., San Francisco. (330)

Bakery Packaging. Kit describes establishment of automatic, high speed, polyethylene line.—Amsco Packaging Machinery, Long Island City, N. Y. (332)

Labeler. Gives specs and features of new high-speed unit.—2p.—Crompton & Knowles Packaging Corp., Holyoke, Mass. (329)

Australian Survey. Deals with nation's 90% packaging increase during past decade. 58p.—New South Wales Gov't Office, N. Y. C. (333)

Bag Maker & Filler. Describes new twin model using single tube design. 2p.—Triangle Package Machinery Co., Chicago. (334)

Gummed Labels. Gives information and samples of new "Prone" type paper stock which prevents curling. 4p.—Kalamazoo Label Co., Kalamazoo, Mich. (335)

MATERIALS HANDLING

Belting. Catalogs and illustrates conveyor units of major types. 8p.—Burrell Belting Co., Skokie, Ill. (366)

Conveyors. Include dimensions for negative pressure pneumatic system. 4p.—Sprout, Waldron & Co., Muncy, Pa. (367)

Depalletizer. Details redesigned model for automatic can handling at speeds to 45 cases/min. 6 p.—Alvey Conveyor Mfg. Co., St. Louis, Mo. (370)

Steel Shelving. Contains info on boltless T-line, angle, custom, truck shelving, etc. Lockers and cabinets are also included. 36p.—Alan Wood Steel Co., Oaks, Pa. (371)

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PROCESSING

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Tanks & Vats. Gives information on renovations in former models and new

specialized vessels. 8p.—Bishopric Products Co., Cincinnati, Ohio. (317)

Tomato Juice Spoilage. Outlines problems and remedies.—Continental Can Co., N.Y.C. (319)

Processing Equipment. Discusses performance and characteristics of firm's line with special section on operating principles. 12p.—Fuller Co., Catasauqua, Pa. (321)

Classifiers. Details rubber-lined, liquid cyclone units with specs of sizes available. 8p.—Dorr-Oliver, Inc., Stamford, Conn. (325)

Processed Meats. Study guide illustrates and describes curing, air drying, canning, freezing, and freeze-drying. 18p.—Armour & Co., Chicago, Ill. (326)

Boiler. Contains descriptive specs of new compact unit. 2p.—Vapor Heating Corp., Chicago. (328)

Bakery Research. Describes R&D facilities available to baking industry. 4p.—Do-Maker Center for Bakery R&D, Belleville, N. J. (340)

SANITATION & MAINTENANCE

Fly Control. Considers food processing problem including precautionary rules for applying residual deposits. 6p.—American Institute of Baking, Chicago, Ill. (343)

Rodent Control. Describes new, effective system based on electronic sound. 1p.—Dynamic Sound, Inc., Cleveland, Ohio. (348)

Brewery Sanitation. Details latest mechanized cleaning methods especially designed for brewery operations. 3p.—Oakite Products Inc., N.Y.C. (349)

Bakery Sanitation. Covers in detail practices required for all operations. 34p.—Diversey Corp., Chicago. (351)

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Sewage Treatment. Provides information on unique single tank unit for domestic waste disposal. 8p.—Dorr-Oliver Inc., Stamford, Conn. (344)

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Product Development. Presents key steps in creating, developing, and marketing new products — guides on organization and planning,

"We use a Heil Dryer to dewater a mixture of partially dried corn fibers and concentrated proteinaceous corn steepwater. The mixture enters the drier at 35% H_2O, and leaves at 11%. After grinding and classifying, this constitutes our commercial corn gluten feed.

"The mixture fed to the drier is of a sticky nature which tends to form partially dried dark pills in long retention-type driers. The Heil dryer, being a short retention-type drier is the only one of this class tested which produces a final product showing little or no tendency to "pack" during a subsequent storage or shipment.

"The Heil Dryer has enabled us to handle large volumes of feed with a minimum of floor space, low maintenance, good fuel economy and excellent temperature and moisture control. It is also capable of being operated, unhoused, under all types of weather conditions.

"We are starting a program this year to rehabilitate our entire corn residue drying plant and expect to install five or six of these Heil units for corn gluten feed and corn gluten meal dehydration service."

Assistant Plant Manager
Engineering and Mechanical
AMERICAN MAIZE-PRODUCTS COMPANY
Roby, Indiana

Heil dries corn products

Cutaway view showing cylinders and the compound showering flights.

Dryer controls moisture. Food by-products are carried on a stream of hot air in the Heil dryer. Having 3 cylinders in one drum automatically gives each particle correct exposure time based upon its weight due to moisture content. Compound showering flights assure ideal use of drying medium, air activity in all areas of the drum and maximum evaporation within a compact machine. Accurate temperature controls assure exceptional quality and color.

Write, wire or call for details.

THE HEIL CO.
(Manufacturers of Ardrier Dehydrators for the Arnold Dryer Co.)
3000 W. Montana Street, Milwaukee 1, Wis.

screening methods for new product ideas, and successful marketing and distribution. 47p. — Prentice-Hall, Inc., Englewood Cliffs, N. J. (381)

Brand Study. Annual study of consumer buying habits in Salt Lake City includes market data on population, industries, retail sales, and family income. 132p.—Salt Lake Tribune & Desert News, Salt Lake City, Utah. (387)

Product Advertising. Handbook explains system for checking advertising tie-ins on items sold through grocery stores. 24p.—Advertising Checking Bureau, Chicago. (395)

Promotion Guide. Brochure lists "how-to-do-it" merchandising aids for selling sour cream. — American Dairy Assn., Chicago. (394)

TV Selling. Basic guide gives points for most effective use of spot TV, including case studies of specific food products. 24p.—Edward Petry & Co., N.Y.C. (384)

Export Sales. Describes how you can get answers from government to basic problems involved in foreign market sales development. 4p.—Small Business Administration, Washington, D. C. (385)

Market Research. Discusses different approaches taken to dig up marketing facts; cites advantages and disadvantages of various methods. 4p.—Opinion Research Corp., Princeton, N. J. (386)

Long-Range Analysis. Gives general expenditure trends, including projections of food store and eating-out sales in New England area. 7p.—Federal Reserve Bank of Boston, Mass. (396)

MANAGEMENT

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Truck Leasing. Analyzes merits and demerits of main types of truck fleet leasing plans and compares cost with company owned units. 32p. — Foundation for Management Research, Chicago. (391)

Personnel. Gives detailed information on selection and proper distribution of executive talent. 4p. — Small Business Administration, Washington, D. C. (392)

Canning Carbonated Drinks. Guidebook gives comprehensive information on process from raw materials to container performance and shelf life. 28p.—Continental Can Co., N.Y.C. (393)

Vitamin Enrichment. Brochure reviews firm's food research, services, and products available to industry. 24p.—Merck & Co., Rahway, N. J. (390)

Equipment Rentals. Outlines advantages of renting handling units. 16p.—Clark Equipment Co., N.Y.C. (368)

Tin. Describes present and potential applications in industry. 18p.—The Malayan Tin Bureau, Washington, D. C. (397)

Management Information. Brochure describes weekly publication aimed at providing supervisory guidance via practical know-how and time-tested, job-proven solutions. 10p.—Elliott Service Co., Mount Vernon, N. Y. (400)

Advertising Storage Tanks. Describes special elevated water tanks built as king-size replicas of consumer products. 4p. — Chicago Bridge & Iron Co., Chicago. (382)

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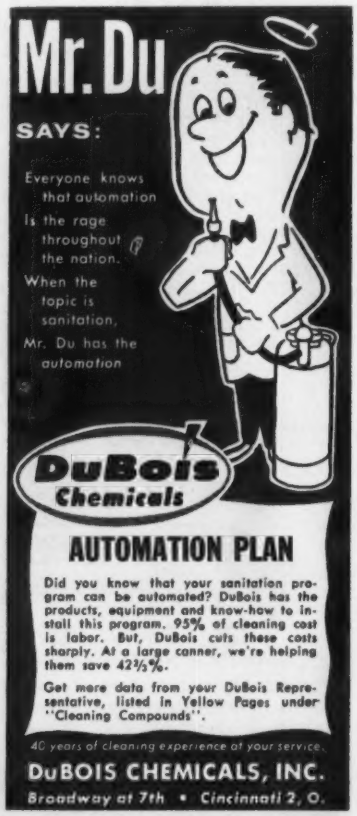
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USEFUL NEW BOOKS

Challenge to Society

AUTOMATION AND SOCIETY. *Ed. by Howard B. Jacobson and Joseph S. Roueck, Philosophical Library, Inc., 15 E. 40th St., NYC 16. 1959. 554p. Price: $10.*

Social and intellectual implications of automation's impact on today's and tomorrow's society are viewed here by 32 business and academic leaders.

In non-technical and practical language, the work provides a current study of an important subject's problems, promises, and applications for both large and small industries.

Book is made still more useful by the inclusion of a glossary of terms, and 37 short case histories summarizing progress in automation in the U. S. and Canada. Final chapter by two Russian authors illuminates the picture of automation in the Soviet Union.

Salt, Salt, Salt

SODIUM CHLORIDE. *Ed. by Dale W. Kaufman. Reinhold Publishing Co., 430 Park Ave., N.Y.C. 22. 1960. 744p. Price: $20.*

About all that's possible to know about salt and brines is included in this new monograph of sodium chloride.

All modern data on the sources, production, properties, and uses of the product are covered in 26 chapters compiled through the efforts of 19 specialists.

Broad as well as specific data is included and current developments in production and uses will be helpful to technologists concerned with nutrition and salt properties.

The Art of Influence

THE STRATEGY OF DESIRE *by Ernest Dichter, Doubleday & Co., 575 Madison Ave., N.Y.C. 22. 1960. 314p. Price: $3.95.*

Here is the finest reply yet to the qualms and fears created by Vance Packard's "The Hidden Persuaders."

It comes from the president and founder of the Institute of Motivational Research, a major target for Mr. Packard's arrows.

Dr. Dichter puts forth his own challenging conclusions. Rather than forbidding desire, he calls for a goal of growth. The freedom to think in new channels is all-important to this author and motivational research thus represents to him the application of social science teaching to the problems of human motivation.

He discusses actual techniques of persuasion and communication, not only in business, but also in government, teaching, raising children, etc. His methods of applied psychology and manipulation are aimed at loftier uses than selling more beer or soap, although he defends the need for commercial influencing, too.

Soup Manual

SOUP MANUFACTURE: CANNING, DEHYDRATING & QUICK-FREEZING. *By Raymond Binsted and James D. Dewey, London Food Trade Press, Ltd., 7 Garrick St., W.C.2, London, England. 1960. 169p.*

New formulae and illustrations of latest equipment and machinery for the manufacture, canning, dehydration and quick-freezing of all types of soups are included in this volume.

Book is geared to the needs of sales and management personnel as well as technologists.

Booklets & Reports

COLOR ADDITIVE AMENDMENTS OF 1960. *Commerce Clearing House, Inc., N.Y.C. 17. 1960. 29p. Price: $1.00.* Explains text of new act and discusses in detail the factors determining hazardous substances.

RUSSIAN PATENTS GAZETTE. *Technical Information Co., Chancery House, Chancery Lane, London. 1960.* English-language guide to Russian patent developments, including a special section on chemistry.

ACCIDENT FACTS. *National Safety Council. 425 N. Michigan Ave., Chicago 11. 1960. 96p.* A guide to planning safety campaigns, reference includes facts on all kinds of accidents, including major industry rates.

MICROSCOPIC-ANALYTICAL METHODS IN FOOD AND DRUG CONTROL, *Food and Drug Technical Bulletin No. 1, Govt. Printing Office, Washington 25, D. C. 1960. Price: $2.00.* Identifies nature and sources of food contamination with special emphasis on industry uses.

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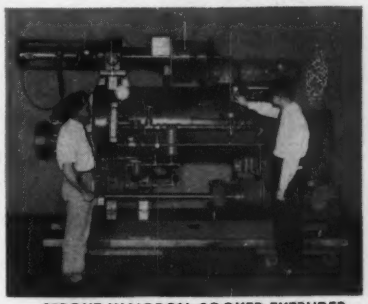

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Decaffeinated Soluble Coffee Extract Preparation.—I. L. Adler, General Foods Corp., White Plains, N. Y. No. 2,933,395.

Malt Beverages Characterized by Presence of at least 7.5 ppm. Adenin.—G. H. Kinsman, Basic Products Corp., Milwaukee. No. 2,938,795.

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Gum Confection Comprising Water-Soluble, Unhydrolyzed Dextran — H. A. Toulmin, Jr., Commonwealth Engineering Co. of Ohio, Dayton. No. 2,938,797.

Bakers' Icing Comprising Sugar and Hydroxyalkyl Dextran as Stabilizing and Bodying Agent. — H. A. Toulmin, Jr., Commonwealth Engineering Co. of Ohio, Dayton. No. 2,938,798.

Blood-Base Pigmenting Composition for Coloring Meat and Fish Products.—L. Sair, The Griffith Laboratories, Inc., Chicago. No. 2,938,800.

PROCESSING

Preparing Cooked Rice for Freezing by Breaking Starch into Gelatinous Mass with Fluffy Surface and Rice Cohering to Each Other.—C. R. Miller, Dallas, Tex. No. 2,938,802.

Making Frozen Seafood Product That Won't Break Apart During Handling and Cooking.—T. S. Gorton, Jr., Cambridge, Mass. No 2,938,803.

Preserving Protein Foods by Disintegration, Heating, Straining Out Insolubles, Adding Fermentable Carbohydrate and Storing at Low Temperature.—H. J. Hestnes, Wrentham, Mass. No. 2,933,398.

Homogenizing Macerated Whole Citrus Fruit to Preserve Product.—J. P. Haman, Whole-orange Corp., Orange, Conn. No. 2,935,407.

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Producing Sour Milk Products with Aid of a Starter.—A. Schmidt-Burbach, Berlin, Germany. No. 2,936,237.

Manufacturing Hard Butter Having a Desired Melting Point.—T. J. Weiss, Swift & Co., Chicago. No. 2,936,238.

Preparing Liquid Whole Eggs for Freezing by Pasteurizing, Cooling and Pressure Pumping. — F. L. Kauffman, Swift & Co., Chicago. No. 2,936,240.

Forming a Hollow Cooked Meat Product. — A. Zitin, Royalist Provision Co., Philadelphia. No. 2,937,092.

Processing Whipped Fat Product Emulsion with Over 20% Overrun.—W. A. Gorman, National Dairy Products Corp., N.Y.C. No. 2,937,093.

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Cutter for Severing Frozen Slabs of Fish Into Side-by-Side Sticks, Comprises Product Conveyor and Series of Cutters Above and Below Belt.—F. X. McCaffery, General Foods Corp., White Plains, N. Y. No. 2,941,560.

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Poultry Chiller For Moving Carcasses Through Below 45F. Agitated Liquid.—D. B. Van Dolah, Swift & Co., Chicago. No. 2,942,429.

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WANTED

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Where ads offer more than one item, I've written key number and identity below

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Name ..... Title .....

Company .....

Address .....

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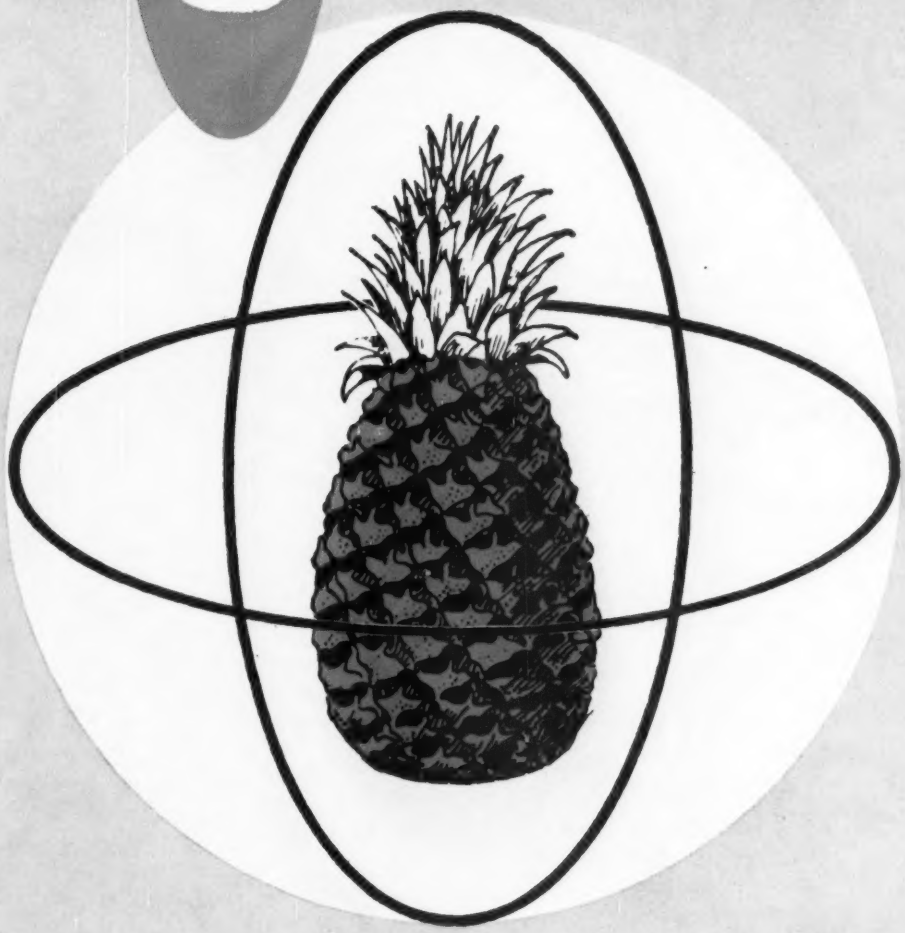
Norda fixes "FLATS"

Flat flavors, that is. One that's giving you trouble, perhaps. Norda's skill with putting life into flavors seems almost unique.

The secret, of course, is in Nature. Norda goes to extremes to fill out Nature's exact measurements—always improving techniques for rounding a flavor to perfection.

Care to compare? A Norda sample will tell.



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Samples, free, by sending your business letterhead to

NORDA, 601 W. 26th St., New York 1, N. Y. • Chicago • Los Angeles • San Francisco • Toronto • Montreal • Havana • London • Paris • Grasse • Mexico City

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WHICH FLAVORS WILL OUTSELL?

Identical flavors to the eye, yes . . . to the taste, no. The basic difference in each case is the unique flavor of one—perfected to outsell—developed by IFF.

Creating outstanding flavors for individual products is an experienced specialty of IFF. The result is a product which establishes brand demand, repeat sales, in a highly competitive market.

And if you are in the international market, IFF can minimize problems of supply. Uniform manufacturing and quality control in all of its plants throughout the world assure customers that IFF flavors, wherever ordered, remain the same from batch to batch.

For the flavors that outsell, contact IFF.

iff

FLAVOR DIVISION

INTERNATIONAL FLAVORS & FRAGRANCES INC.

417 Rosehill Place, Elizabeth 2, N. J.

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